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USSR Report

AGRICULTURE

No. 1292

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MAJOR CROP PROGRESS AND WEATHER REPORTING

UZBEK GRAIN CROPS DEVELOPING SATISFACTORILY

Moscow SEL'SKAYA ZHIZN' in Russian 23 Jun 81 p 1

[Article by A. Uzilevskiy: "The Grain of Uzbekistan"]

[Excerpts] This year's harvest involved the highest indicator for grain production in the entire history of the republic--2.5 million tons. This will lay the basis for producing the 4-5 million tons which Uzbek farmers are to obtain by the end of the Eleventh Five-Year Plan.

All regions of Uzbekistan are now in the process of harvesting and the southern farms have already completed mowing and threshing. Workers in Termeskiy Rayon in Surkhandar'inskaya Oblast are harvesting 40 quintals per hectare, and in Leninyul'-skiy and Dzharkurganskiy--48 quintals. A record harvest on irrigated land was achieved by grain growers of the virgin Gargarinskiy Rayon--52 quintals per hectare. The land was cleared immediately and a second crop is being planted—corn for grain. So the overall return per hectare will exceed 100 quintals.

The harvest from nonirrigated areas was gratifying too. In Baysunskiy Rayon in this same Surkhandar'inskaya Oblast the yields are 18 and 20 quintals per hectare. These yields are the result of the zealous work of agronomists and machine operators.

The situation is similiar on the nonirrigated land of Kashkadark'inskaya Oblast. Kamashinskiy Rayon alone is producing 50,000 tons of grain. All of the 17 harvest-transport detachments working on the fields of the Kamashinskaya steppe have increased the daily output per aggregate to 14 hectares. Teams of the harvesting complex are working on two shifts. Grain cleaning machines are in operation 24 hours a day on the threshing floors.

All rayons and oblasts of Uzbekistan are participating in the competition for increasing grain production. Tashkentskaya Oblast has a difficult and full plan for producing cotton, fruit and vegetable products, coarse feeds, meat, milk and eggs. This year they have decided to produce up to 240,000 tons of grain as well, and they will also harvest more than 40,000 tons of wheat and barley. A couple of days before the harvest the oblast party committee held a seminar at the Gallyakuduk industrial complex in Akhangaranskiy Rayon. Something can be learned here: the harvest-transport detachment operates on two shifts and combine operators are threshing 18 quintals of grain and barley from each irrigated hectare. The straw is immediately raked up with smoothing harrows and sent to the farm. Then plows are used and the cleared area is prepared for next year's crop.

The system of material and moral incentives for participants in the harvest is instructive for many farms of the oblast and republic. In addition to awarding the leading workers pennants, Challenge Red Banner, monetary prizes and gifts, the harvest-transport crews are also now being paid in kind.

Spike crops have already been harvested from more then 200,000 hectares. Each day 20,000-25,000 tons of grain are threshed. The largest threshing per hectare--35 quintals of grain--are being obtained by the farms of Surkandar'inskaya Oblast, and the farms of Bukharskaya and Andizhanskaya oblasts are obtaining an average of 20-25 quintals. More than 300,000 tons of grain have accumulated on the threshing floors of the republic: the sale of it to the state is proceeding slowly so far. One-third of the oblasts have not yet begun to ship the grain.

The republic's grain balance is formed not only from spike crops, but also from corn and rice. It will be necessary to obtain about 1.5 million tons of corn grain and almost 500,000 tons of rice. This year the corn growers of the republic have committed themselves to growing no less than 70 quintals of corn on each hectare. Not much time is left before the beginning of mass harvesting of the cobs, but a considerable proportion of the combines in Samarkandskaya and Khorezmskaya oblasts and the Karakalpakskaya SSR are not ready for operation. As usual we have not solved the problem of providing farms of Uzbekistan with technical equipment that is capable of harvesting high-stalked and highly productive corn. A combine that can do this is very necessary.

The rice was planted at the best times this year. But as operational data show, the rates of caring for the planted areas are still not very high: only 40 percent of the fields have been weeded, 25 percent have been treated with herbicides, and 30 percent have been top dressed.

The organization of local seed growing must also be mentioned. The Central Asian branch of VASKhNIL has developed a realistic program for expanding the areas planted in new regionalized strains of grain, pulp and feed crops. The reproduction of these strains is the responsibility of scientific research institutions of this branch, but they are not dealing with the problem. Only two-thirds of the required amount of the Tazpishar strain of wheat is being raised. The same thing is taking place with the propagation of the elite seeds of the local wheat, Krasnovodopadskaya-210. Only 29 tons of them were prepared for this year's planting. The farms of the republic are very much in need of hybrid seeds of Dneprovskaya-70 corn.

The harvest of grains in Uzbekistan is increasing each day. It is very important to gather the harvest in the shortest possible periods of time and without losses.

11772
CSO: 1824/347

GRAIN HARVEST PROGRESSING IN TURKMENISTAN

Moscow TRUD in Russian 30 Jun 81 p 1

[Article by V. Knyazev: "Grains Being Harvested"]

[Text] The grain harvest is in full swing on the fields of the Turkmenskaya SSR. The leading farms of the republic have done a good deal to raise a good harvest of barley and wheat, and now they are striving to reduce the time periods for harvesting. The kolkhozes and sovkhozes of Gyaurskiy Rayon are providing an example of good organization in the harvesting of winter crops. They are threshing an average of 22 quintals from each hectare here and the grain growers of the Sovet Turkmenistany Kolkhoz and the Kolkhoz imeni Makhtumkuli are harvesting 28 quintals.

This is certainly not the situation everywhere. For instance, machine operators of the Kolkhoz imeni Zhdanov in Bakhardenskiy Rayon were among the first to complete the harvest. But there is no joy in this victory. For they harvested only 11 quintals of grain from each hectare. Why was the harvest so poor?

The chairman of the kolkhoz, B. Annamukhamedov, explains this by the difficult weather conditions and the late planting. But the fields themselves give a more correct answer, for they still bear the traces of a negligent attitude toward the harvest. Strips of unmowed barley remain on many sections. Grain was lost because of the poor adjustment of the combines.

"Just by looking one can determine that up to 30 percent of the grain remained on the fields," as the chairman of the rayon people's control committee, M. Atayev, summed the situation up.

Unfortunately, the same situation could be observed on other farms of the rayon--the Kolkhoz imeni Kirov and the Zakhmet Kolkhoz. The fields of Sh. Akmuradov brigade of the Sovkhoz imeni XXI s"yezda KPSS in Bayram-Aliyskiy Rayon looked like a bitter lesson to careless managers. Masses of grain and spikes remain on the stubble. No one has calculated the losses. But the productivity, which amounted to only 9 quintals per hectare, speaks for itself.

It is not an easy thing to raise grain, especially under the conditions of hot Turkmeniya. But it is even worse when labor is frequently expended in vain. In this same Bayram-Aliyskiy Rayon farms are provided with plenty of combines and enough machine operators to work on two shifts. The managers of the rayon Goskomsel'khoztekhnika machine association reported that the repair of harvesting equipment had been completed in the middle of spring. But then the day of the harvest came and only half of their assigned combines went out onto the fields. The rest were not in working condition.

"Goskomsel'khoztekhnika lets us down every year," complained the head engineer of the Bayram-Aliyskiy agricultural administration, S. Khidyrov.

True, they let them down, but one must ask where were the specialists of the rayon administration, kolkhozes and sovkhozes, the people's controllers and the trade union activists? Why did they not promptly inspect the quality of the repair of the machines? And what happened is that of the 740 combines that were to be used to harvest grain less than 500 went out onto the fields, and even their daily output was only five hectares. This is also why the harvest took so long. And spike crops do not wait; they drop valuable grain on the ground.

I asked this in various rayons of the republic: which of the managers bore personal responsibility for the poor quality of the repair of combines and the unjustifiable loss of the grain? No answers could be given. So no one is responsible for preserving the harvest.

The republic trade union committee of agricultural workers should also be reproached. They have a perfunctory attitude toward the organization of socialist competition among combine operators. The names of the best ones are not determined, the experience of the leading workers is not generalized and, naturally, it is not disseminated.

The harvest of winter grain crops is being completed now on the farms of the Ashkhabadskaya Oblast. But it is still continuing in other oblasts of the republic. Rice and corn for grain still have to be harvested in the future. It is important to analyze this situation on the spot, to draw conclusions from the mistakes made on the grain fields and to take all necessary measures for reducing losses of the crops. Everything that has been raised should be placed in the grain bins.

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CSO: 1824/347

MAJOR CROP PROGRESS AND WEATHER REPORTING

LEADING, LAGGING REGIONS NOTED IN OVERVIEW OF SUMMER FIELD WORK

Moscow SEL'SKAYA ZHIZN' in Russian 11 Jun 81 p 1

[Article: "A Summer Day -- For the Harvest"]

[Text] Summer has arrived on the vast expanses of our country -- a most important stage in the work performed by the farmers. It is during this hot and busy period that a tremendous complex of agrotechnical and organizational measures must be carried out in order to ensure that the planned harvests are obtained at each kolkhoz and sovkhoz and that the obligations undertaken for the first year of the five-year plan are fulfilled.

A great amount of work has already been performed in the interest of achieving high final results. The spring crops were planted on 145.8 million hectares -- the sowing campaign is coming to a close. The structure of the area under crops has been improved. Considerable areas have been planted in wheat, barley, rice, cotton, sugar beets, potatoes and vegetables. More buckwheat, peas, soybeans and grasses have been sown than has been the case in past years. Top dressings were applied to the winter crops in a timely manner. Special importance is being attached at the present time to ensuring that all of the fields and plantations are tended in an exemplary manner. In addition, each sown hectare must be productive and furnish a maximum amount of products and raw materials.

Such is the slogan for the competition that has been launched among the Kuban' farmers, who this year plan to harvest 8.5 million tons of grain and supply the state's granaries with no less than 4.36 million tons. A great deal is being accomplished towards achieving a cropping power for the grain crops of 35-36 quintals per hectare, sugar beets -- 315 and peas -- 25 quintals. The leading collectives are competing to achieve higher yields. In the interest of obtaining strong grain, the winter wheat sowings are being treated additionally with carbamide. A second cultivation of the sunflowers is being carried out in all areas and a third loosening of the inter-row spacings and the application of a second top dressing to the sugar beets have commenced. Under the scorching rays of the sun, the rice is growing in a healthy manner in the water-flooded check plots. Water is being supplied to the corn, soybeans and vegetables. The farm leaders and agronomists are attentively monitoring the status of the crops and, depending upon the prevailing conditions, they are undertaking the measures required for obtaining their programmed yields.

The summer work is unfolding in an active manner on many farms throughout the Ukraine. A high grade has been assigned to the crop tending work being carried out at the Kolkhoz imeni Voykov in the Crimea. Here the grain and row crops are growing in a rapid manner. This farm, characterized by a high culture of farming, plans to obtain 50 quintals of grain, 22 quintals of soybeans and 1,500 quintals of root crops per hectare. A great volume of work is being carried out throughout the republic by Ukrsel'khozkhimiya. Using special equipment, the agrochemists have already treated more than 5 million hectares of plantings with herbicides. This is producing noticeable results. In particular, those plantings where the crops are being cultivated using an industrial technology are looking very good.

Constant concern and attention for the sown fields and for developing a maximum harvest are being displayed in other republics, krays and oblasts. In Latvia, for example, chemical weed control operations are being employed extensively on the beet and potato plantations. The Moldavian farmers have released millions of insects from their laboratories -- trichogrammas -- which destroy beet, cabbage and green vetch pests. Thus, more than 250,000 hectares of gardens and orchards will be protected here. Tolerating no delays, special teams in Kalininskaya Oblast are treating the flax sowings, as they strive to obtain as much seed and fibre as possible.

While taking note of the positive experience accumulated, we must not at the same time overlook the sluggish manner in which some summer operations have been carried out. In the case of corn being cultivated for grain using the conventional technology, inter-row tilling of the plantings has thus far been carried out on only one third of the areas devoted to this crop. On considerable areas, especially in Saratovskaya, Volgogradskaya and Kuybyshevskaya Oblasts, the first shallow plowing of the sunflower plantings has yet to be carried out. The farms in Gor'kovskaya Oblast and the Bashkirskaya ASSR are only now commencing to till their potato fields, despite the fact that weeds have appeared in a number of areas.

The beet production workers and those attached to the processing industry are confronted by important tasks associated with raising the gross yields of beets and increasing the production of sugar. The planting of this crop has been completed and yet the cultivation of the plantings and the formation of the planting densities are being dragged out unjustifiably in a number of areas. Whereas the farms in Belgorodskaya and Kurskaya Oblasts are nearing completion of their thinning out of the plants, in Voronezhskaya Oblast this work had been carried out on only 1 percent of the plantings by the beginning of June, in Penzenskaya Oblast -- on 3 percent and in Tambovskaya Oblast -- on 4 percent. The party committees, agricultural organs and the farm leaders and specialists are obligated to undertake urgent measures aimed at intensifying the tending of the crops and preventing reductions in the sugar beet yields at the kolkhozes and sovkhozes.

This year the possibility exists of achieving considerable growth in the production of agricultural products and raw materials on irrigated lands. The area sown on such lands exceeds 13.2 million hectares. From these irrigated lands, the country must obtain guaranteed yields for its grain, cotton, corn, rice, vegetables and forage crops. At the present time, the problem is one of ensuring that the plantings are watered, provided with a top dressing and cultivated in a timely manner. However, data furnished by the USSR CSA reveals that by 1 June the first watering had been carried out on 6.4 million hectares -- somewhat less than the figure for this same time last year. And indeed the weather at the present time is dry and hot in a majority of the areas. The plants are experiencing a need for moisture. Thus the sprinkling units and all other equipment for delivering water to the fields must be operated at full capability. As yet, this cannot be said for certain farms in the southern Ukraine, Moldavia and Turkmenistan, where incidents involving violations of the watering schedules have taken place.

In discussing the need for raising the kpd [efficiency factor] of the lands, especially irrigated lands, attention must necessarily be focused on the need for carrying out repeated and post-harvest sowings. This year a noticeable increase must take place in the area of such sowings. The leading farms, after harvesting their early grasses and grain crops, are cultivating the newly made available fields, applying fertilizers to them and thereafter immediately resowing them. Some farms in Tajikistan, as a result of having sown corn a second time, are obtaining 100-130 quintals of grain per hectare. Repeated sowings of buckwheat and millet are being carried out successfully in Stavropol'skiy Kray. The area of such sowings is in excess of 18,000 hectares. Experience has shown that such tracts can be found in many other zones. The expenses involved for carrying out repeated sowings of grain and forage crops are negligible and the advantages great. This reserve should not be overlooked.

The summer period serves as a strict test for our farmers. In order for each sown field to produce an excellent yield, it must be worked by diligent hands and skill and expertise displayed. Only when this is done will the summer display its generosity.

7026
CSO: 1824/340

DISSATISFACTION WITH IRRIGATION OF FORAGE CROPS IN UKRAINE STRESSED

Moscow SEL'SKAYA ZHIZN' in Russian 26 Jun 81 p 1

[Article by S. Luzgan, Ukrainian SSR: "Do Not Wait For Droughts on Irrigated Land!"]

> [Text] Very little concern is being displayed for the irrigation of forage crops on farms in a number of regions in the Ukraine.

It can generally be said that a great amount of work is being carried out throughout the republic in connection with strengthening the feed base for animal husbandry. Improvements have been realized in the structure of the area under crops and in the selection of the forage crops. The progressive technology for procuring hay and haylage is being employed on a more extensive scale. A greater amount of irrigated land has been set aside this year for perennial grasses (although the amount is less than that required by scientifically sound crop rotation plans). The purpose of these efforts -- to reduce the shortage of protein in the animal rations and sharply lower the expenditures of bread grain for forage purposes.

The irrigated tracts of feed land are located mainly in the arid steppe zone of the republic. And irrigation operations have been organized on the majority of the farms here. For example, almost all of the sprinkling equipment at kolkhozes and sovkhozes in the Crimea is being operated in two shifts. The first watering of the perennial grasses and corn was completed on a timely basis and the second has commenced. Data on soil moisture conditions is being published regularly in the local press and broadcast over the radio

One fifth of all arable land in Khersonskaya Oblast is under irrigation. Over a period of two decades, the food root yields obtained from these lands increased by threefold and corn for silage -- by a factor of 1.8. The leading farms are annually obtaining up to 1,000 quintals of perennial grass fodder from their well moistened lands. At the present time, all of the reclaimed areas here are being tended by mechanized teams. The greatest yields from irrigated hectares are being obtained by the collectives of cost accounting subunits, where the work is evaluated based upon the final results.

However, it bears mentioning that during the past five-year plan many farms in Nikolayevskaya Oblast did not achieve their planned cropping powers for crops grown under irrigation conditions. This resulted mainly from the fact that disruptions occurred in the irrigation schedules. Nor is the situation any better at the present time. During the first decade in June, when the plants were especially thirsty, only 46,000 hectares were saturated with moisture here -- less than one third of the plan. More than 300 sprinkling machines were not even included in the work.

Recently, during a meeting of the staff for operational management of feed procurements, mention was made of the fact that on a number of farms in this oblast the harvesting of alfalfa is being dragged out, that it has ceased altogether in some sectors and that a pause has been allowed to develop between the mowing and gleaning of the windrows. As a result, the nutritional value of the grasses deteriorates and the next watering is delayed.

Nor is the situation any better at many kolkhozes and sovkhozes in the forest-steppe and Polesskaya zones of the republic. Compared to the southern Ukraine, the irrigated tracts on farms in Kiev and Chernigovskaya Oblasts are not very large, but even on these tracts the yields of perennial grasses last year turned out to be two times lower than the figures planned.

Unfortunately, the mistakes are being repeated again this year. For example, take the Sovkhoz imeni Zhdanov in Baryshevskiy Rayon in Kiev Oblast. More than 300 hectares are under irrigation here, but as yet only one half has been watered and the second watering has yet to commence. What is the problem?

The mechanics of the pumping station are on the staff of the Trubezhskoye Administration for Drainage and Irrigation Systems and the irrigation specialists are assigned to sovkhozes. The two groups are unable to settle upon a common language between them. It is recalled how on the 2d of June mechanic M. Gusak did not depart for work and the sovkhoz hydraulic engineer M. Terletskiy made the following entry into the log: "He did not appear at the pumping station." And the mechanic added below: "The station was not operating owing to the absence of irrigation specialists." Then there was the entry by mechanic S. Kramarenko: "The Volzhanka unit stood idle for 8 days. At 14:00 hours the station shut down."

Alongside the irrigation system there are 97 hectares of cultivated pasture land. Earlier this land was watered using mobile irrigation equipment, but this year the mobile equipment is not being used in the hope of modernizing the system. When will this take place. Nobody is offering an intelligent reply. Meanwhile, the pastures are drying up.

Unfortunately, a similar situation prevails at the Semenovskiy Sovkhoz where, because of failure to reach agreement, not all of the sprinkling units have been placed in operation. It is also surprising to note that on many of the farms no responsibility has been established for the costly sprinkling equipment and the reclaimed lands have no permanent overseer, nor have they been assigned to teams or detachments.

It follows that the watering of forage crops has not been organized on many farms in Chernigovskaya Oblast. For example, there are slightly more than 2,000 irrigated hectares in Chernigovskiy Rayon. These are cultivated pastures for the most part. Hot weather prevailed up until recently and a large number of the sprinklers were inactive. An interfarm association for the use of reclaimed lands was created recently in the rayon. The farms allocated resources and relieved themselves of responsibility. Today the Director of the Ukraina Sovkhoz, O. Naumov, is accusing the association of poor utilization of the irrigation equipment, while the head of the association, V. Karbiyevskiy, is reproaching the Board of Directors of the Sovkhoz for having failed to provide the irrigation specialists with everything required. And this is taking place at a time when the moisture supply in the soil is deciding the fate of the feed base!

Quite often the sprinklers lie idle owing to so-called minor discrepancies. However, they are not always minor. There are 100 hectares of cultivated meadow at the Ukraina Sovkhoz. It was not mowed in a timely manner and thus the hands of the operators and mechanics were tied.

Serious shortcomings in organizing the watering of forage crops are being tolerated by many farms in Prilukskiy, Srebnyanskiy and Sosnitskiy rayons, where dozens of sprinkling units are still not in operation. Neither artesian wells nor mobile pumping stations have been prepared at a large number of farms. Operational data reveals that many sprinkling units are either not in operation at all or they are being operated in just one shift in Zaporozhskaya, Voroshilovgradskaya and Poltavskaya Oblasts.

True, rain fell recently on a considerable portion of the Ukraine. But it must be stated that only laboratory data on the degree of moisture saturation of the soil can indicate whether or not such supplies of moisture are adequate for the plants. And what about tomorrow? Will such light rainfall dampen the ardor of the irrigation specialists?

A radical change must take place in the attitude towards the use of irrigation equipment on feed lands. They must all be placed in operation immediately.

7026
CSO: 1824/355

MAJOR CROP PROGRESS AND WEATHER REPORTING

SOWING OF SECOND CROPS FOR FODDER IN MOLDAVIA RECOMMENDED

Kishinev SOVETSKAYA MOLDAVIYA in Russian 10 Jul 81 p 1

[Report on conversation with M. F. Lupashku, Moldavian SSR minister of agriculture, academician of the Moldavian SSR Academy of Sciences: "Two Harvests From a Field"]

> [Text] The busy time of grain harvesting coincides with another important agricultural campaign--the sowing of second crops. At the request of an ATEM [Moldavian Telegraphic Agency] correspondent, M. F. Lupashku, Moldavian SSR minister of agriculture, academician of the Moldavian SSR Academy of Sciences, discusses this potential for an increase in fodder production for collective animal husbandry.

The republic's natural resources--the abundance of heat and light, the prolonged period of plant vegetation and fertile land--enable farmers to annually obtain two harvests from one field, he said. The weather now also dictates the need "to condense" a hectare of arable land. The rain that fell in the last few days replenished moisture reserves in soil. For example, from 61 to 159 mm of rain fell in the north of the republic, up to 73 mm, in the central regions and up to 60 mm, in the south.

Taking into consideration this favorable factor, as well as the rather early ripening of grain, this year it is possible to place second crops on up to 80,000 hectares, which is more than initially envisaged. These are fields cleared after the harvesting of winter and spring barley for grain and of annual fodder crops--vetch and oats. It is also necessary to utilize the areas of winter wheat of early harvesting--of course, if it is not planned to sow it again in the fall.

Corn, Sudan grass, millet, buckwheat and early ripening soybean varieties are the crops that it is advisable to place on resown areas. Of the corn hybrids, KVS-713, Moldavskiy-251 and Moldavskiy-102 are the best for this purpose. Sown during the first two 10-day periods in July, they enter the phase of milky-wax grain ripeness before the onset of fall frost and serve as a good silage material.

In order that the hectare to which a double program is assigned may "work" productively, it is necessary to reduce the gap between the harvesting of a preceding crop and the sowing to a minimum. This will make it possible to retain valuable moisture in soil and to gain time for the formation of the harvest on the resown area. An efficient organization of the entire set of operations--from grain harvesting and straw carting to soil preparation--should play its role here. Sowing must be carried out on disked soil--best of all with stubble seeders. Experiments show that on areas comparatively clear of weeds and sufficiently loose such seeders, which perform operations of loosening, fertilizer application, seed placement and packing simultaneously, can also be utilized without preliminary soil cultivation.

The success of this endeavor largely depends on the application of mineral fertilizers--nitrogen and nitrogen-phosphorus fertilizers. The utilization of irrigation will also determine the size of the harvest. Scientific studies, as well as the experience of advanced farms, indicate that under the republic's conditions the goal of 200 to 250 quintals of green mass per hectare of resown areas is quite realistic. For example, the Miknutsy Sovkhoz and the Berezovskiy Sovkhoz of the Zarya Scientific Production Association attained such results last year.

We are now investigating the possibility of obtaining two grain harvests a year from a unit of area. The experiments set up in Chadyr-Lungskiy Rayon show that, as a result of an increase in the utilization of the coefficient of photosynthetic active radiation by plants and a skillful combination of winter barley with ultra-early corn and soybean hybdrids, it is possible to ensure an output of 80 quintals of grain per hectare.

The condensation of a hectare of arable land under Moldavia's conditions is also of great importance from the agrotechnical point of view. Resowing creates favorable conditions for the control of weeds and diseases and pests of agricultural crops and makes it possible to successfully protect soil against water erosion.

In conclusion Comrade Lupashku said that with a strict fulfillment of the basic technological methods of cultivation of fodder crops on resown areas this year there is every possibility of additionally obtaining up to 1 million tons of green mass. This will serve as a good source of fresh fodder during the fall months and will make it possible to increase silage reserves for the republic's collective animal husbandry.

11,439
CSO: 1824/374

MAJOR CROP PROGRESS AND WEATHER REPORTING

COTTON GROWERS FIGHT AGAINST BAD WEATHER CONDITIONS

Moscow PRAVDA in Russian 14 Jun 81 p 1

[Article by M. Malkis and A. Grachev: "Young Fields Tested"]

[Excerpts] The weather caused more trouble for the farms of northern Tashauzskaya Oblast than for others. No matter which farm one went to, shock work was in progress everywhere. For this oblast is the republic's leading one for raising "white gold." Tashauzskaya workers understand that the fate of the harvest is being decided today and that everything depends on their skillful hands. "The main thing is not to lose time. Every hour that is lost can result in unharvested crops." We heard these words from many people with whom we spoke. They were like a motto which originated from the high conscientiousness of the cotton growers and their devotion to their duty.

These days all able-bodied people of the farms are thinning the cotton plants. Special encouragement is given to those who are able to do this work rapidly. The results of the competition of machine operators are summed up every five days and prizes are given for overfulfillment of the norms and high quality of the loosening of the interrows.

Today on the Tashauzskaya fields one can see various devices which help the machine operators to apply organic fertilizers to the soil rapidly. June is not very hot in this oblast and the nights are cool. There is not enough warmth for the cotton plant. Specialists think that fertilizers will help to accelerate the development of the plants.

"Agricultural workers are in a very difficult and complicated period now," says the first secretary of the Tashauzskaya party obkom, B. Atayev. "There is a lot of work. But concern for people is in the foreground. Good cultural and domestic conditions have been created for the cotton growers. Motorized stores with goods and consumer service vehicles come to the fields. Hot food is available in the camps. During breaks there are performances by agitators, propagandists and amateur artistic collectives. Concern for man is at the center of the attention of rural party organizations."

The spring cold spells will still have an effect on the development of the plants. Especially in Maryyskaya and Ashkhabadskaya oblasts where thin-fibered strains are raised. They have a longer growing period. Therefore a special plan has been drawn up for caring for these plants. In order to facilitate the fight against weeds, the fields are cultivated lengthwise and crosswise. This cuts manual labor in half.

On the whole the republic has conducted only two cultivations and the thinning of the plantings has not been completed. It is necessary to accelerate this work because the hot days have come and these are most favorable for the development of cotton. And it is necessary to utilize the heat with maximum advantage for the crops.

The plants now need increased top dressing. Unfortunately, there have been arrears in this operation on almost all the farms. All kinds of field work have slowed down in Karakumskiy, Turkmen-Kalinskiy, Farabskiy, Karabekaul'skiy, Leninskiy and Takhtinskiy rayons. Inefficiency today will be very costly tomorrow. Therefore it is important to put all reserves to work for the future harvest.

Certain party committees and local party organizations were not as good as others. They were slow in arranging their work taking into account the existing situation. The republic's cotton fields must now become the shock front of all rural residents. It is the duty of each communist to inspire them to highly productive labor and to set a good personal example.

Cotton growers of Turkmenistan have committed themselves this year to giving the homeland 1.22 million tons of "white gold." They have every opportunity to carry out this responsible task.

11772
CSO: 1824/346

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

EARLY POTATOES--Kurgan-Tyube--Farms of the Vakhshskaya valley have begun harvesting of early potatoes. The potato growers of the oblast intend to sell the state 1.5 times more early tubers than was planned this year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 4 Jun 81 p 1] 11772

COTTON PLANTINGS--Tashkent--Summer colors lay on the fields of the Gul'bakhor Sovkhoz ("blossoming spring") of Surkhandar'inskaya Oblast. Despite the heavy rains and hurricane winds, the cotton plants blossomed earlier than usual here. This is the result of intensive care for the planted areas. The cotton is developing at accelerated rates on other farms of Uzbekistan as well. This year they are to produce 5.9 million tons of raw cotton. [Text] [Moscow TRUD in Russian 30 May 81 p 1] 11772

COTTON CULTIVATION--Tashkent--Planting work on cotton fields has been completed in half of the oblasts of Uzbekistan. Precision planting with hulled seeds in hills located close together has been conducted on almost a million hectares. Cotton has been planted along cleared ridges on 250,000 hectares. Seeds treated with biostimulators have been planted on twice as much area as last year. Each day farmers of the republic planted cotton on more than 100,000 hectares of fields. Cotton shoots have appeared on the areas that were planted early in Surkhandar'inskaya Oblast. On the Sotsialism Kolkhoz in Dzharkurganskiy Rayon, following the brigade of Kh. Abdullayeva, a delegate to the 26th CPSU Congress, all cotton growers began to treat the planted areas. The cultivators were equipped with bunkers for simultaneously applying organic fertilizers to the loosened soil. Under the conditions of this year's rainy spring, advanced agrotechnology will serve well to protect the shoots from damage by crusted soil and root disease. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 22 Apr 81 p 3] 11772

EARLY POTATO STRAINS--Osh--The harvesting of the tubers has begun on plantations with early ripening strains of potatoes in the south of Kirgizia. The harvesting aggregates are in operation on the Kenesh Sovkhoz in Kara-Suyskiy Rayon in Oshskaya Oblast. They are digging 160-170 quintals of tubers per hectare. Potato growers of other farms have also raised a good crop. The farmers of the oblast have resolved to sell the state one-third more tubers than last year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 Jun 81 p 1] 11772

PLANTED COTTON--Ashkhabad--Farmers of Turkmenistan have completed the planting of fine-fibered cotton on the entire area of 170,000 hectares. Preplanting preparation of the land was conducted around the clock, and the planting -- on two shifts. This year the cotton plantations were expanded and only highly productive strains suitable for mechanized harvesting were planted. In the first year of the Eleventh Five-Year Plan farmers of the republic will have to obtain 255,000 tons of fine-fibered cotton. [Text] [Moscow GUDOK in Russian 9 Jun 81 p 1] 11772

VEGETABLE CROP--Ashkhabad--Farmers of the Prikopetdagskaya plain have raised a rich crop of early vegetables. They were assisted in this by the dissemination of the advanced practice of the leading farms. Planting by the square cluster method was introduced as was the pottery method of raising seedlings of late strains of cabbage and tomatoes. [Text] [Moscow GUDOK in Russian 9 Jun 81 p 1] 11772

MASS POTATO HARVEST--Kurgan-Tyube--The farms of the valleys of Tajikistan have begun mass harvesting of potatoes. This is the yield from winter plantings. In the mountain zone where the snow has just left they are completing the planting of this crop. They achieve high yields here -- at a height of about 2,000 meters they gather an average of 350-400 quintals of tubers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 6 Jun 81 p 1] 11772

COTTON PLANTING--Ashkhabad--Farmers of Turkmenistan completed cotton planting yesterday, a crop which occupies more than a half million hectares. More than one-third of this area is planted in the fine-fibered strains. [Text] [Moscow TRUD in Russian 17 May 81 p 1] 11772

EARLY VEGETABLES--Alma-Ata--Farmers of the capital oblast have basically completed planting of vegetables. Only summer plantings of carrots remain. The motto the farmers are following is "To give the state more early vegetables." Few days remain before the harvest of the cabbage that was planted in the spring under cellophane. Gardens under temporary coverings now occupy 300 hectares. Also raised here are cucumbers and tomatoes. The seedlings of these crops are planted on a large area and on the open ground, which also accelerates the ripening of the crop. Farmers are now irrigating and top dressing the plants. Farmers of the oblast intend to sell the state more than 30,000 tons of early vegetables -- considerably more than the plan calls for. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 May 81 p 1] 11772

EARLY VEGETABLE CROP--Chimkent--Specialized farms of the oblast began to ship early vegetables to industrial centers of the country yesterday. It is intended to deliver from Chimkent gardens to outside the oblast no less 8,000 tons of early cabbage, cucumbers and other vegetables, which is one-third more than the plan. [Text] [Moscow TRUD in Russian 2 Jun 81 p 1] 11772

EARLY VEGETABLE HARVEST--Mary--Specialized sovkhozes of the Murgaba valley and the Karakumy virgin land began mass harvesting of early vegetables. Railroad cars filled with cabbage were sent yesterday to Chelyabinsk and Kemerovo. Along with harvesting the farmers are planting tomatoes, cucumbers and other crops with medium ripening times. [Text] [Moscow TRUD in Russian 14 May 81 p 1] 11772

REPEATED VEGETABLE PLANTING--Tashkent--Repeated vegetable planting was begun on the farms of Tashkentskaya Oblast. Late ripening carrots, onions and cucumbers are being planted on land that has been cleared of early garden crops. The farmers have decided to replant 2,000 hectares -- 1.5 times more than last year. [Text] [Moscow TRUD in Russian 2 Jun 81] 11772

UZBEK COTTON--Tashkent--Before the tender green shoots of cotton appeared the farmers of Uzbekistan began to work to make sure that they would come up firm and strong. Having completed the planting of the most valuable fine-fibered strains today, the machine operators brought cultivators and harrows out onto the fields. This kind of accelerated work was dictated by the weather conditions in which this year's planting was conducted. Rains and hot sun immediately afterwards led to the formation of a hard crust on the soil of almost all of the plantations. The main task of the republic's cotton growers is to help the weak shoots break through it. Fine-fibered cotton has been planted on more than 135,000 hectares this year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 23 Apr 81 p 1] 11772

EARLY APRICOTS--Kanibadam--Apricot harvesting has begun in the orchards of the interkolkhoz association imeni 50-letiye Tadzhikistana. Eight farms of Kanibadamskiy Rayon have created this largest gardening association in the republic. Taking advantage of the association's experience, dozens of kolkhozes and sovkhozes are assimilating unfavorable rocky land in the foothills. They have already transformed almost 20,000 hectares into orchards. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 27 May 81 p 2] 11772

EARLY POTATO HARVEST--Tashkent--Under local conditions early potatoes usually ripen at the end of May, but the Sovkhoz imeni XXI parts"yezd in Kalininskiy Rayon has already begun to dig early potatoes. The farm has tested technology for aising the tubers during the winter. The potatoes were planted at the end of autumn. Each hectare received 40 tons of manure. During the cold winter the plants were covered with transluscent plastic. In the early spring the hills were irrigated and covered with mulch. Potato growers of the sovkhoz are now harvesting 200 quintals of well ripened potatoes from each hectare. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 24 Apr 81 p 1] 11772

STATE GRAIN BINS--Ashkabad--Farmers of Turkmenistan have begun to sell grains from the new harvest to the state. Tractor trains filled with barley have arrived at the procurement points from the kolkhozes and sovkhozes of Maryyskaya Oblast. The crop is larger than last year's. In Turkmen-Kalinskiy Rayon, for example, 25 quintals of grain have been gathered from each hectare. And the largest threshings are being obtained on the farms of Turkmenistan's granary, the Prikopetdagskaya plain which is irrigated from the Karakum canal. Thus virgin farmland workers of Ashkabadskiy and Gyaurskiy rayons have gathered almost 30 quintals of barley from each hectare. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 4 Apr 81 p 1] 11772

MOWING AND THRESHING--Ashkabad--Farms of Ashkabadskaya Oblast have completed the mowing and threshing of winter grain crops. The yields are greater than last year's. About 85,000 hectares were allotted for spike crops in Turkmenistan. The grain has already been harvested from a large proportion of the field. [Text] [Moscow PRAVDA in Russian 23 Jun 81 p 1] 11772

STATE GRAIN SALE--Termez--Grain growers of Surkhandar'inskaya Oblast, who yesterday began to sell grain to the state, have raised an excellent crop. Many farms have revised their commitments. They are counting on fulfilling their plan for placing grain in the country's grain bins twiceover. [Text] [Moscow TRUD in Russian 3 Jun 81 p 1] 11772

GRAIN RECEIVING--Osh--The harvested grain has arrived at the grain receiving points of southern Kirgiziya. The farmers' partners, the procurement workers, have prepared well for the harvest. New grain storehouses have been put into operation and asphalt areas have been expanded at the receiving point. When the Rybachinskiy elevator reached its planned capacity this summer, enterprises of the branch could receive up to 20,000 tons of grain from the farms each day. Having organized 24-hour operation, the procurement workers committed themselves to receive more than 300,000 tons of grain this year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 27 Jun 81 p 1] 11772

GOOD HARVEST IN MOLDAVIA--Kishinev, 3 Jul--Machine operators were festively sent off with songs to the field in Moldavia. A total of 500 overall detachments began the harvesting of grain crops. The hot summer maximally condensed the periods of work. Grain is ripening quickly. In order to reduce grain losses to a minimum, machine operators maneuver equipment and observe 24-hour schedules of joint operations in the conveyer field-threshing floor-elevator. The first grain yields attest to a good harvest in the Dnestr area. Grain growers in Suvorovskiy, Kaushanskiy and Slobodzeyskiy rayons receive more than 40 quintals of grain per hectare. Many farms in the south of the republic have already begun the harvesting of winter wheat. /Text7 /Moscow SEL'SKAYA ZHIZN' in Russian 4 Jul 81 p 17 11,439

POOR WORK ORGANIZATION--This year, owing to showers and gusty winds, on some areas winter crops lodged, in connection with which additional difficulties with their harvesting arose. Success is ensured where the labor of overall mechanized detachments is organized efficiently, harvesting equipment is used productively and not a minute of good weather is missed. Only a constant observation of the condition of fields, high readiness of combines for operation under complex conditions and operational maneuverability of equipment can ensure success. Precisely such an attitude toward work enabled farmers in Kantemirskiy Rayon to thrash 1,200 tons of grain during the past 24 hours and in Dubossarskiy and Novoanenskiy rayons, 850 and 670 tons respectively. It should be noted that with the labor resources and equipment released these days owing to weather conditions work on threshing floors in connection with the additional cleaning of grain and sale of grain to the state has been poorly organized on a number of farms. Meanwhile, every lost minute of work time affects the yield and quality of grain. Primary party organizations and managers and specialists of farms and detachments are called upon to do everything that is necessary to completely close the channels of losses and to fully gather the grown harvest. /Excerpts7 /Kishinev SOVETSKAYA MOLDAVIYA in Russian 8 Jul 81 p 17 11,439

MASS CORN SOWING--Kishinev, 28 Apr--Moldavia's farmers have begun the mass sowing of corn. On the entire area of 350,000 hectares this crop is cultivated according to industrial technology, which eliminates numerous cultivations and weeding during crop vegetation. More than 500 detachments formed in the republic perform operations in a single complex. Combined units for the application of herbicides and their simultaneous placement are used widely. Corn sowing is to be completed in 10 work days. /Text7 /Moscow SEL'SKAYA ZHIZN' in Russian 29 Apr 81 p 17 11,439

ELIMINATION OF HARVEST OVERSIGHTS--Grigoriopol'skiy Rayon--Not for nothing is grain harvesting called the battle for bread. The fate of the harvest, success in the fulfillment of the undertaken obligations or irretrievable losses depend on the strategy and tactics of large mechanized subdivisions and on every combine and tractor operation and every driver. A great deal has been done in Grigoriopol'skiy Rayon in order to gather every grain of the harvest of the first year of the five-year plan and to send it to the bins. The rain, having stopped the harvest campaign, makes it possible to eliminate the oversights disclosed during the first days of the harvest campaign and to prevent them where grain is just ripening. [Excerpts] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 8 Jul 81 p 1] 11,439

RAINY WEATHER--The unstable weather hampers harvesting to some extent. The rain that fell in many regions in the republic impedes the harvesting and threshing of grain. These days special concern must be manifested for the maximum utilization of every hour of good weather. Where this is done skillfully, machine operators attain success. In Kantemirskiy Rayon during the past 24 hours grain and pulse crops were harvested from 1,246 hectares and about 3,000 tons of grain were threshed. In all, the harvest was gathered from almost one-fourth of the entire area. Farms in Vulkaneshtskiy and Chimishliyskiy rayons delivered more than 1,000 tons of grain to threshing floors. Despite the whims of nature it is necessary to completely and promptly carry out all technological and organizational measures, to avoid a gap between the mowing and threshing of grain and to ensure the safety of all the grown harvest and its delivery to the bins. [Excerpts] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 10 Jul 81 p 1] 11,439

LODGING OF GRAIN CROPS--Do not leave unthreshed ears in the field and avoid the leakage of grain into straw and chaff and its losses during transportation--the participants in the present uneasy harvest campaign try to follow this most important precept of the grain grower. In order to fully gather the grown harvest and, at the same time, avoid the slightest losses, they activate additional potentials. Kagul. On some farms in the rayon grain crops lodged on almost one-half of the areas. Therefore, for each specific field specialists developed individual recommendations for harvesting. On the areas where the wind "took a stroll" to its heart's content on high-stem grain machine operators are harvesting in one direction--against the lodging. This is how windrow harvesters operate on the Kolkhoz imeni Lenin, on the Kolkhoz imeni Kirov, on the Kolkhoz imeni Michurin and on many other farms. This prolongs the heaping time to some extent--idle passages have to be made--but, on the other hand, ensures a high quality of harvesting. [Excerpts] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 10 Jul 81 p 1] 11,439

HARVESTING IN KARSHI STEPPE--Karshi, 3 Jul--Twenty-four-hour work is the distinctive feature of the present grain harvesting campaign in the Karshi steppe. It is best organized on the Charvador Sovkhoz. There every combine is provided with three crews. The entire farm collective--both young and old--considers the harvesting of grain, which occupies 9,600 hectares, the main job. A high harvest has now been cultivated. Every irrigated hectare produces no less than 60 quintals of grain. This despite the complex weather conditions: In the spring there was torrential rain followed by violent sandy winds. However, people proved to be stronger. They saved the crops with the help of equipment and through a skillful application of organic and mineral fertilizers, with which the sovkhoz is well provided. This year virgin land workers in Kashkadar'inskaya Oblast have vowed to obtain no less than 340,000 tons of grain from the fields. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 4 Jul 81 p 1] 11,439

HARVEST CAMPAIGN IN UZBEKISTAN--Karshi, 17 Jul--The front of the harvest campaign moved from the Karshi steppe to the spurs of the Gissar and Mal'guzar ranges. A high grain harvest ripened there. The mechanized detachments of the Sovkhoz imeni Karl Marx--the largest specialized grain farm in South Uzbekistan--are working well. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 81 p 1] 11,439

GRAIN DELIVERY TO ENTERPRISES--Chimkent, 16 Jul--Farms in Chimkentskaya Oblast have already delivered 352,000 tons of grain to grain receiving enterprises on account of their high obligations. However, its flow is not diminishing. Many kolkhozes and sovkhozes are selling grain in excess of the plan. Grain growers in Algabasskiy Rayon have achieved great success. With a plan of 46,000 tons, they dispatched 75,000 tons of grain to the state. The harvest campaign on the Sovkhoz imeni Dzhambul is proceeding harmoniously. A total of 17.5 quintals per hectare were gathered there on an area of 9,700 hectares of harsh nonirrigated land. Turkestanskiy, Bugunskiy and Saryagachskiy rayons sold grain in the volume of 1½-year plans. Farms in Tyul'kubasskiy and Lengerskiy rayons are noted for high yields of grain. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 81 p 1] 11,439

HARVESTING OF WINTER WHEAT--Semipalatinsk--Another oblast in Kazakhstan--Semipalatinskaya Oblast--received the baton of the harvest campaign. Machine operators have begun the harvesting and thrashing of winter wheat and barley on the fields of sovkhozes and kolkhozes in southern rayons. An overall utilization of equipment will help to harvest grain crops, which occupy 1,100,000 hectares in the oblast, in a short time--in 15 to 18 days. [Text] [Moscow TRUD in Russian 18 Jul 81 p 1] 11,439

HARVESTING OF LODGED GRAIN--Bryansk--Farmers in Navlinskiy and Klintsovskiy rayons were the first to begin harvesting in the oblast. Harvesting is done by the swath method. The Ipatovo method is used everywhere. For the harvesting of lodged grain combines and harvesters are equipped with grain lifters. [Text] [Moscow TRUD in Russian 12 Jul 81 p 1] 11,439

SWATH METHOD OF HARVESTING--Bryansk--Harvesting is going on on all the oblast's farms. Grain crops have been put into windrows on almost 60,000 hectares. The Ipatovo method has been introduced everywhere. The swath method of harvesting makes it possible to efficiently utilize equipment and to lower grain losses. A number of farms have begun the thrashing of grain. [Text] [Moscow TRUD in Russian 19 Jul 81 p 1] 11,439

RIPENING OF PULSE CROPS--Saransk--Winter crops and peas on the fields of the southern nonchernozem area have ripened earlier than usually. All farms in Mordovskiy Rayon have begun their mass harvesting. About 60 mechanized detachments and links--a record number for all the years--have been established. Most harvesters have been adjusted for a low cut, which makes it possible to harvest undersized and lodged grain. In all, grain growers in the autonomous republic will now have to harvest grain and pulse crops from an area of 700,000 hectares. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 18 Jul 81 p 1] 11,439

HARVESTING IN KURSKAYA OBLAST--Kursk--The harvest has come to the fields of the oblast's northern regions. To harvest and thrash grain crops on all 1,130,000 hectares in 15 to 18 days--this is the goal outlined by local machine operators. A total of 520 harvesting-transport complexes operate. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 18 Jul 81 p 1] 11,439

CONSOLIDATED MECHANIZED DETACHMENTS--Ryazan'--Winter rye has been put into windrows on the first hundreds of hectares on farms in Rybnovskiy, Novoderevenskiy, Skopinskiy, Shatskiy and Miloslavskiy rayons in the oblast. Consolidated mechanized detachments working according to the Ipatovo method have joined the harvest campaign. They include links for straw procurement, technical assistance and cultural and general services. A reliable communication with the controllers of Sel'khoztekhnika associations is ensured by means of 1,000 portable radio stations. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 18 Jul 81 p 1] 11,439

HARVESTING IN KALUZHSKAYA OBLAST--Kaluga, 16 Jul--Farmers in Kaluzhskaya Oblast took out combines to the fields. Machine operators in Zhukovskiy and Maloyaroslavetskiy rayons were the first to begin the harvesting of winter crops. The thrashing of windrows has already begun there. About 400 harvesting-transport complexes and detachments operate in the oblast. The operation of equipment is organized in two shifts. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 81 p 1] 11,439

CITY ASSISTANCE TO FARMERS--Penza, 16 Jul--The harvesting of early grain and pulse crops has begun in all the oblast's rayons. A total of 800 harvesting-transport complexes went out to the field. More than 5,000 workers and employees from the oblast's cities and about 1,000 students, who completed courses for combine operators, have arrived on farms to help farmers [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 81 p 1] 11,439

GRAIN HARVESTING IN KALMYKIA--Not a minute of idle time for harvesting units in the field--this is the slogan with which Kalmykia's farmers, who have begun the mass harvesting of grain crops, are working. About 250 harvesting-transport complexes have joined the operation harmoniously. Most farms have made provision for gathering the harvest in a short time--in 10 to 12 work days. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Jul 81 p 1] 11,439

HARVESTING IN DON AREA--Rostov-on-Don, 17 Jul--Don's elevators have already received ½ million tons of grain of the new harvest. Kolkhozes and sovkhozes in Sal'skiy, Orlovskiy, Zimovnikovskiy and other rayons have poured 40,000 tons and more each into state bins on account of the fulfillment of the first obligation. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 81 p 1] 11,439

INTRODUCTION OF IPATOVO METHOD--Rostov-on-Don--A total of ½ million tons of Don grain was sent to state bins today. The collectives of 1,200 harvesting-transport complexes in the oblast are working with the slogan: "high rates and excellent quality for the harvest!" Owing to the wide introduction of the Ipatovo method grain crops were harvested from two-thirds of the allocated area. Farms in Semikarakorskiy, Orlovskiy and Bagayevskiy rayons are close to the completion of the plans of the first stage in harvesting. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 18 Jul 81 p 1] 11,439

GRAIN HARVEST IN GEORGIA--Tbilisi--The harvest in the Shiraki steppe--Georgia's granary--entered a crucial stage: Grain was harvested from one-half of the areas. Having introduced the watch method, many farms in the republic ensure high rates of harvesting. [Text] [Moscow PRAVDA in Russian 14 Jul 81 p 1] 11,439

FLOODS IN GEORGIA--The torrential rain that fell on the entire territory of East and West Georgia in the last few days caused floods. In Sagaredzhoyskiy Rayon water and mud streams demolished dams and in the vicinity of the city of Chiatura several bridges were destroyed and electric transmission lines were damaged. Serious damage was done to areas sown with corn, soybeans, kidney beans and vegetables and to vineyards. Operational headquarters were established in the rayons that suffered from the elements. The necessary equipment and construction materials were sent to cities and rural areas. Representatives from Tbilisi, Kutaisi and other cities arrived for restoration work. [Text] [Moscow TRUD in Russian 18 Jul 81 p 4] 11,439

BARLEY HARVESTING IN GEORGIA--Signakhi (Georgian SSR)--Barley harvesting has begun in the Alazan valley--Georgia's granary. Plowing units, which prepare soil for sowing corn for silage, follow the combines to the fields. [Text] [Moscow TRUD in Russian 12 Jun 81 p 1] 11,439

GRAIN SALE TO STATE--Alma-Atinskaya Oblast--Farms in the capital oblast have begun the sale of grain to the state. Farms in Talgarskiy, Chilikskiy and Enbekshikazakhskiy rayons, which were the first to begin grain thrashing, are selling grain to the state. The enterprises servicing them are operating according to a 24-hour schedule. The transport and lifting equipment has been renovated, which has increased the capacity of enterprises. Even at the peak of grain delivery they will operate without lines of motor vehicles at gates. Controllers, to whom transport brigades have been assigned, are joining the operation. The computer center of the republic's Ministry of Motor Transport will prepare the schedule of each motor vehicle. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 Jul 81 p 1] 11,439

HARVESTING OF WINTER RYE--Aktyubinskaya Oblast--The oblast's southern rayons are harvesting winter rye. Farmers in Uilskiy Rayon are to harvest it from an area of 6,000 hectares. More than 20 harvesters were taken out to the field. The rates of work are high. In all, farmers in Aktyubinskaya Oblast are to thrash rye from 100,000 hectares. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 Jul 81 p 1] 11,439

HARVESTING-TRANSPORT COMPLEXES--Talas, 16 Jul--Grain growers in Talasskaya Oblast have begun the mass harvesting and thrashing of grain crops. More than 50 harvesting-transport complexes formed by the Ipatovo method went out to the fields. Interfarm cooperation helps field workers to operate equipment in a highly productive manner. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 81 p 1] 11,439

RIPENING OF GRAIN CROPS--Grain ripened in the valleys of Semirech'ye. The hot weather, as well as the prompt care of fields, accelerated the ripening of grain crops. Machine Operators in Kerbulakskiy Rayon were the first in Taldy-Kurganskaya Oblast to begin the harvesting of grain crops. They intend to cope with the harvesting in a short time. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Jul 81 p 1] 11,439

CSO: 1824/375

LIVESTOCK FEED PROCUREMENT

PROSPECTS, TRENDS FOR LIVESTOCK FEED INDUSTRY DURING ELEVENTH FIVE-YEAR PLAN

Moscow MUKOMOL'NO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST' in Russian No 5, May 81 pp 40-41

[Article by A. Koshelev, deputy chief of the Main Administration for the Production of Mixed Feed and Feed Additives of the USSR Ministry of Agriculture: "Goals of the New Five-Year Plan"]

[Text] In the Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990, approved during the 26th CPSU Congress, it is written: "Animal husbandry is considered to be a vital front for work in the rural areas. Further growth must be achieved in the production of output in this branch and the productivity of the livestock and poultry must be raised. The average annual production of meat must be increased to 17-17.5 million tons (in dressed weight), milk to 97-99 million tons and eggs to no less than 72 billion and wool -- to 470,000-480,000 tons."

The solving of this task will be dependent to a tremendous degree upon the organization of full value feeding for the livestock and poultry. In this regard, during the Eleventh Five-Year Plan a great amount of attention will be given to the further development in the country of a reliable and balanced feed base for animal husbandry. Feed production at the kolkhozes and sovkhozes will assume a specialized branch character.

Under the conditions imposed by intensive animal husbandry operations, great importance is attached to organizing the correct utilization of feed, especially concentrated feed. The problems concerned with the most effective and rational use of concentrates must be the object of daily attention by the agricultural organs and the kolkhoz and sovkhoz leaders and specialists.

A large portion of the gross yield of grain is still being used for feed purposes throughout the country. This emphasizes once again the great importance attached to the thrifty utilization of each kilogram of forage grain.

Concentrated feed is best used and produces the highest return when utilized in the form of mixed feed that is balanced in terms of nutritional value. Each ton of full value mixed feed consumed in dairy animal husbandry, compared to a grain mixture, makes it possible to obtain 250-300 additional kilograms of milk, in swine raising -- 30-40 additional kilograms of pork and in poultry raising -- 800-900 additional eggs.

However, on the average for the country as a whole, mixed feed constitutes at the present time only 45 percent of the overall consumption of concentrated feed. In the Kazakh SSR, mixed feed still does not exceed 31 percent, Kirghiz SSR -- 35 percent, Turkmen SSR -- 40 percent and in a number of oblasts in the Russian Federation, for example Volgogradskaya, Saratovskaya, Ul'yanovskaya, Orlovskaya and Chelyabinskaya — only 20-28 percent.

A considerable quantity of concentrates is still not being used in an efficient manner in the form of simple feed mixtures and crushed grain. When such concentrate feeding is employed, the farms sustain a shortfall of one third in animal husbandry products and, as a minimum, an over-expenditure of feed of one and a half times.

In this regard, exceptional importance is attached to further increasing the production of mixed feeds at state enterprises where use is made of state raw material resources and at kolkhozes, sovkhozes and interfarm enterprises, based upon the use of their own raw material resources and industrially produced protein-vitamin additives.

A definite amount of work was carried out in this direction during the past five-year period and this made it possible to increase the production of mixed feed in agriculture from 6.5 million tons in 1975 to 16.5 million tons in 1980. A great amount of attention is being given to the production of mixed feed in Krasnodarskiy and Stavropol'skiy Krays, the Mariyskaya ASSR, Voronezhskaya, Kuybyshevskaya, Rostovskaya, Penzenskaya and Orenburgskaya Oblasts in the Russian Federation, the Moldavian SSR, Latvian SSR, Lithuanian SSR and in the Estonian SSR.

A great amount of experience in organizing the production of mixed feed on an interfarm basis has been accumulated in the Ukrainian SSR. Here, in 1980, the agricultural enterprises produced 6.3 million tons of mixed feed, or 50 percent of the overall production of such feed in the republic.

Experience reveals that the mixed feed industry of agriculture is capable of solving the tasks confronting it with regard to further increasing the production of mixed feed. During the past few years, measures have been carried out aimed at strengthening and developing the logistical base of the interfarm, kolkhoz and sovkhoz mixed feed shops and plants and converting them into highly mechanized and modern enterprises. Completely mechanized lines for the acceptance, cleaning and drying of grain in a flow line have been created at many of the above facilities and storehouse capacities, including those of the elevator type, equipped with highly productive transport and technological equipment, have been built. This makes it possible to accept, process and place the principal amount of forage grain in storage directly during the crop harvesting period.

Work is being carried out in a number of republics and oblasts in connection with expanding the assortment of the feeds being produced, achieving specialization at individual interfarm plants for the production of mixed feed for poultry and organizing the production of starter feed for young agricultural livestock. In the interest of raising the quality of the products being produced, the plants are being equipped with lines for adding premixes, fat and molasses to the mixed feed.

A greater number of shops will be created at the interfarm plants for the production of mixed feed additives -- grass, coniferous and meat and bone meal, yeasts, dried skim milk, whole milk substitutes and others.

Many interfarm, kolkhoz and sovkhoz enterprises have mastered the production of full value granulated and briquetted feed mixtures for the fattening of livestock and sheep, containing up to 50 percent chopped straw and 30-40 percent concentrates, grass and coniferous meal, carbamide, molasses, feed phosphates, salt, chalk and other additives. The use of such feed mixtures during the final fattening of large-horned cattle makes it possible to obtain a guaranteed average daily increase in the live weight of young stock of from 900 to 1,000 grams.

At the same time, there are still a large number of agricultural mixed feed enterprises, especially kolkhoz and sovkhoz shops and units, which are not meeting the requirements established for the production of mixed feed. The shops do not have complex mechanization for their technological processes or labor-consuming production operations, nor do they have the facilities required for storing the raw materials and finished products. In terms of their technical equipment, they are not capable of producing complex multi-component mixed feeds. A considerable number of these enterprises need to replace their obsolete equipment and they require modernization and the development of their storehouse and drying economies.

For the replacement of the OKTs units, enterprises of the Ministry of Machine Building for Animal Husbandry and Feed Production have developed and will commence the series production, during this current five-year plan, of complete equipment for the OTsK-4 and OTsK-8 automated mixed feed shops, having a productivity of 4 and 8 tons of mixed feed per hour*. When necessary, these shops can be supplied with equipment for the preparation of protein-vitamin additives using local raw materials.

The OTsK-4 and OTsK-8 shops include lines for adding mineral components and liquid feed additives -- fat, molasses. Provision is made for the crushing and drying of mineral raw materials. Taking into account the high hygroscopicity of chalk and salt, Minzhivmash developed a set of equipment for the preparation of preliminary mixtures of mineral components, containing a filler (bran, oil-seed meal and others) and having a productivity of 1.2 tons per hour. The production of OTsK-4 units has already commenced and they are being installed on farms in the Russian Federation, the Belorussian SSR and in the Moldavian SSR.

During the past few years, considerable increases have taken place in the deliveries to agricultural mixed feed enterprises of A1-DDP and A1-DDR hammer mills, with their productivities of 5 and 10 tons per hour, horizontal mixers of periodic action, batchers, modernized press-extruders for the production of carbamide concentrate and the extrusion of grain, highly productive conveyers and bucket conveyers and grain drying units.

During the Eleventh Five-Year Plan, the kolkhozes and sovkhozes will be supplied with 1.5 times more items of highly productive equipment for the production of mixed feed than were supplied during the 1976-1980 period. This will make it possible to raise the level of mechanized operations considerably and also to increase the labor productivity at the mixed feed enterprises.

Future success in the construction of mixed feed enterprises in the rural areas and their introduction into operations will be greatly dependent upon the timely supplying of the construction projects with the required materials and equipment. The present system is too complicated. In a number of instances, the supplying of the required technological equipment is being carried out through staffing organizations of USSR Goskomsel'khoztekhnika and it is being done on an unplanned and quite often incomplete basis. Existing enterprises are not being satisfactorily supplied with equipment, materials or spare parts.

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* Journal MUKOMOL'NO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST' [Milling-Elevator and Mixed Feed Industry], 1981, No 3.

At the present time, USSR Minsel'khoz [Ministry of Agriculture], jointly with USSR Goskomsel'khoztekhnika, is undertaking measures aimed at improving logistical supply and raising the technical level of services for the interfarm, kolkhoz and sovkhoz mixed feed enterprises of the USSR Ministry of Agriculture, improving the utilization of production capabilities, the training and retraining of workers and specialists and also other measures aimed at improving the work of the mixed feed plants and shops.

The decree of the CC CPSU and the USSR Council of Ministers entitled "Measures for Increasing the Production and Raising the Quality of Feed During the 1978-1985 Period" called for the production of mixed feed at interfarm, kolkhoz and sovkhoz mixed feed enterprises to reach 25 million tons by 1981 and by 1985 -- 30 million tons. In this regard, all measures must be taken to improve the use of and to strengthen the logistical base of the interfarm, kolkhoz and sovkhoz plants and shops in the production of mixed feeds and feed additives, while bearing in mind that the principal increase in productive capabilities during the current five-year plan is to be realized through the modernization and technical re-equipping of existing enterprises.

Standard plans are presently being developed for the construction and modernization of mixed feed enterprises, which will employ the complete equipment of the OTsK-4 and OTsK-8 mixed feed shops. In the Ukrainian SSR, plans are being developed for the modernization of interfarm mixed feed plants involving the use of technological equipment employed in the state mixed feed industry. These plans call for an increase in the capability of the enterprises from 50 to 150 tons of mixed feed per shift.

By 1990, all of the grain to be used for forage purposes must be utilized only in the form of full value mixed feed. Thus it will be necessary during the next few years to carry out measures aimed at further strengthening the raw material base of the mixed feed industry.

First of all, radical improvements will have to be realized with regard to supplying the agricultural mixed feed industry with enrichment additives. In addition to increasing the cultivation of high protein plant feed and making proper use of the protein-vitamin additives allocated by the state, the extensive production of various feed additives, using local raw material resources and the waste products of industrial branches engaged in the processing of agricultural raw materials, must be organized at the interfarm enterprises, kolkhozes and sovkhozes. During the course of meeting the requirements for high protein additives and other types of non-grain raw materials, the existing capabilities of the mixed feed enterprises may already be capable of producing a considerable increase in the production of mixed feed. This can be accomplished by making use of the forage grain resources available on the farms, of which only 30-40 percent is being processed into mixed feed annually.

Each year, approximately 26 million tons of skim milk, buttermilk and whey are fed to animals throughout the country in liquid form. Thus the kolkhozes, sovkhozes and interfarm organizations must organize the drying of the waste products of dairy production on a more extensive scale, especially during the summer, at which time there is no acute shortage of protein and the farms have large quantities of skim milk at their disposal. This would make it possible to have approximately one half million additional tons of highly valuable protein of animal origin.

Considerable raw material resources for the production of mixed feed can be obtained by organizing the drying, on an interfarm basis, of such products of the sugar, fermentation and starch syrup production operations as beet pulp, malt residue, brewing waste and potato pulp.

Full use is not being made of the opportunities available for increasing the reserves of dry animal feed (meat and bone meal), made from animal raw materials available on each farm. The agricultural organs must intensify their control over the accelerated construction of plants for the production of meat and bone meal.

Measures must be undertaken aimed at increasing the production of briquetted and granulated full ration feed mixtures made from coarse and concentrated feeds for the fattening of large-horned cattle. In connection with this problem, more extensive use must be made of the experience available on leading farms in the Ukrainian SSR, Lithuanian SSR and the Moldavian SSR.

The implementation of the planned program for increasing the production and raising the quality of the mixed feed being produced at kolkhozes, sovkhozes and interfarm mixed feed enterprises and also measures aimed at intensifying the production of feed will make it possible to improve considerably the feeding of the livestock and poultry and to ensure fulfillment of the production volumes for meat, milk and other animal husbandry products during the 1981-1985 period.

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LIVESTOCK FEED PROCUREMENT

HAYCUTTING HAMPERED IN LITHUANIA

Weather Conditions Unfavorable

Vilnius SOVETSKAYA LITVA in Russian 24 Jun 81 p 2

[Text] One of the most important parts of the work on the farm now is correct harvesting of the yield of first-mown grass. The majority of farms of Kaunasskiy, Klaypedskiy, Kupishkskiy, Pasval'skiy and Prenayskiy rayons have adapted to the prevailing unfavorable weather conditions and have skillfully organized and are now conducting the haying. But this work is not being done rapidly enough everywhere. The rates of preparation of grass feeds are causing alarm primarily on individual farms of Akmyanskiy, Kedaynskiy, Vil'nyuskiy, Shakyayskiy, Trakayskiy, Tauragskiy, Ignalinskiy and several other rayons.

The bad weather should not be the main impediment to the procurement of feeds. It is very important to process the mowed grass as quickly and well as possible, obtaining hay, haylage and other feeds from it. Using each hour of good weather efficiently, the farms of Skudasskiy, Ionishkskiy, Klaypedskiy and Kretingskiy rayons were able to procure a fairly large amount of hay last week. Farmers of other rayons should follow the example of these rayons. When procuring hay it is very important to use existing active ventilation equipment as productively as possible. The damper hay should be sprinkled with salt when it is loaded into the active ventilation installation.

If it is not possible to prepare hay, haylage and silage should be prepared from the grass that it is available. The farms that have equipment for producing grass meal should do everything to make sure that they operate at full capacity, producing grass meal and chopped grass.

Each farm manager and specialist must be concerned about using various technologies for harvesting first-mown grass as quickly as possible and preparing high-quality feed, since all the grass has ripened. The areas that have been harvested should be immediately top dressed with nitrogen fertilizers. If all this is done promptly we shall obtain a good aftercrop.

Hay Mowing Hindered

Vilnius SOVETSKAYA LITVA in Russian 20 Jun 81 p 1

[Text] It is a popular saying that rain falls not when you want it, but when grasses and rye are being mowed. And in fact this year the rains became more frequent at the height of haying. But efficient managers adapt to any weather conditions, maneuver technical equipment skillfully, take advantage in practice of the advice of scientists and the experience of leading workers, and apply various technologies. And there is no complaint against them. Take, for example, the Geguzhes devintoyi Kolkhoz in Shyaulyayskiy Rayon. During sunny weather they throw all their forces into hay procurement and when the bad weather begins they begin to store up haylage and silage. The farm is completing the harvesting of first-mown grass.

The Sotsialistinis kyalyas, Aleksandrava and Pyargale kolkhozes in Plungeskiy Rayon have basically dealt with this work (they are now harvesting annual grasses and grass from nonagricultural land). Thus the Sotsialistinis kyalyas Kolkhoz has stored up a good deal of hay, 2,000 tons of haylage and a lot of early silage.

Unfortunately, the picture is quite different on the Shateykyay and Milashaychyay sovkhozes and the Gintalishke Kolkhoz in this same Plungeskiy Rayon. And the lands are all located adjacent to one another, and the "heavenly vault" is the same, there is technical equipment, but things are not coming together here, the grass is being harvested slowly and the quality does not meet the demands that are placed on it. Why? Because these farms do not have the proper organization, their work is not smoothly arranged, and they do not follow the recommendations of scientists. When the rains started, they stopped turning the mown grass. It lay in this condition for more than three days, and in the meantime it began to sprout from underneath and to rot. They stopped mowing. The conclusion emerges of its own accord that the managers of these farms and the specialists did not exhibit intelligence and efficiency in procuring feeds.

A local inspection conducted by specialists showed that in some places labor organization is poor and, for various reasons, technical equipment is not utilized at full capacity. On the Kolkhoz imeni M. Mel'nikayte in Shal'chininkskiy Rayon on the day of the inspection the machines were only out on the fields 12 hours a day and the mown grass was turned very infrequently. On the Rayzhyay Kolkhoz in the Alitusskiy Rayon on the same day only two of the eleven mowers were in operation at 5 o'clock in the evening.

It is clear that with such a situation one can not speak about high rates of haying. The grass lay on a large area of the mown meadow, but no one thought to turn it. The tractor operators left and the brigade leader did not even know about this. If the grass were turned promptly and dried as much as possible, by the end of the day it could be taken to a shed or the drying could have been completed with active ventilation. But this was not done and it rained the next day. The farm's head engineer, Yu. Matulenis, had not properly organized the peoples' labor for feed procurements. As you see, he counted on rain that day.

But the managers of the Galyunas Kolkhoz in Alitusskiy Rayon exhibit real concern for feeds. Mechanized complexes are operating on the meadows, people know their tasks, and each tractor operator is responsible for the quality of feeds. Wages are made dependent on the final results. If high-quality is prepared from a section harvested by a particular machine operator, he is given additional payment, and if it is of poor quality, his earnings are reduced by a certain percentage. People are materially motivated to achieve excellent final results. The competition also serves this end and the results of it are summed up each day. On the kolkhoz everything is done efficiently, with good planning and calculation. The feeds are weighed, they are strictly accounted for, and measures are taken for fire safety.

But the work is done differently on other meadows with identical conditions. While in Lazdiyskiy, Kaunasskiy and Prenayskiy rayons the matter of feed procurement is proceeding well, the farms of Ignalinskiy, Shakyayskiy and other rayons are considerably behind them in terms of the rate and quality of grass harvesting. For instance in Skuodaskiy Rayon they did not begin to store up silage at all until recently.

The irregularity in the indicators is especially visible in the work of aggregates for producing grass meal. The conditions here are absolutely identical. But what do the results look like? In Lazdiyskiy, Prenayskiy and Vilkavishkskiy rayons they are twice as high as the republic average. Each conventional aggregate here produced 126-136 tons of valuable feed. But in Ignalinskiy Rayon the output amounted to 30 tons, and in Ukmergskiy--44 tons. This happens because in a number of rayons the sets of equipment began to operate later. It was not arranged for them to operate 24 hours a day. Some people think that expenditures of fuel on the production of meal and granules are greater during rainy weather. Possibly. But this is recouped with supplies of valuable feeds.

It is also impossible to consider it normal when in a number of places hay fields are not promptly allotted for procuring feeds for livestock that are kept on the private subsidiary farms of the kolkhoz and sovkhoz workers and technical equipment is not allotted to harvest the grass. This, naturally, prolongs haying.

In the address of the Central Committee of the Communist Party of Lithuania and the Lithuanian Council of Ministers workers of cities and villages are called upon to engage more actively in the work and develop socialist competition more extensively in feed procurement. The farms that are winning now are those that are able to rapidly reorient themselves with respect to the technology of feed procurement. On rainy days the main things are haylage and silage. And silage must be stored with preservatives. It is necessary for the sets of equipment to operate 24 hours a day. "Plenty of food for the livestock during wintering"--this motto must be the main one in the farmers' work.

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LIVESTOCK FEED PROCUREMENT

TECHNOLOGY IMPORTANT TO ESTONIAN FEED CROP HARVESTING

Tallinn SOVETSKAYA ESTONIYA in Russian 11 Jun 81 p 2

/Article by A. Laansalu, chief of the Main Administration of Mechanization of the Estonian SSR Ministry of Agriculture: "Under Any Weather Conditions"/

/Text/ In my opinion, hay mowing occupies a special place among the most important agricultural campaigns. The concept of "harvest campaign," which is widely prevalent among the people, is most applicable to feed procurement, especially hay procurement, because this work is difficult, because until the last few years the labor of feed procurement workers was not mechanized sufficiently and because the success of this work greatly depends on weather.

With what does the republic come to the next hay mowing time and what results do we have the right to expect during the first year of the 11th Five-Year Plan from our feed procurement workers?

Our farms are beginning the present hay harvest much better technically equipped than during previous years. A total of 124 E-280 silage harvesting combines more than last year will now go out to meadows. This is a significant replenishment of the machine pool with highly productive equipment.

A shortage of agitators is a problem that existed during all the years of the past five-year plan. If the shortage of these machines is added to the unfavorable weather conditions, when during the hay mowing time there were only 12 to 14 dry sunny days, it will become clear why many farms procured so little hay. On the present scale cradles are weak helpers. Now our farms have 600 more agitators with active working elements than a year ago. In addition to this, 100 highly productive agitators came from the GDR and another 150 pickup harvesters should arrive from the Polish People's Republic.

The task of mowing hay every day, but of procuring the type of forage that weather permits, has now been set for feed procurement workers. The absolute condition is that, whether it is hay, haylage or silage, it must be of a high quality.

The quality of hay in our country has improved in recent years, but the quality of haylage, silage and grass has been lowered. What is the reason? In practice, high-grade haylage and silage, especially grass meal, can be prepared in any weather. I remember that at first, when haylage procurement just began to be mastered in the republic, the developed and recommended technology was followed punctually, the trench was filled over a period of no more than 3 days, ramming was not stopped day or night, only slightly cured green mass was stored and trenches were closed hermetically. A strict observance of technology made it possible to attain a high quality of this type of fodder. In the last few years livestock breeders have very often complained about the quality of haylage and laboratory analyses have confirmed the truthfulness of their words. The violation of technology is the reason. The shortage of equipment, machines for the delivery of green mass, heavy tractors for the packing of the mass and so forth is the justification. With a sound thought-out labor organization these problems are solvable on almost every farm, although we must admit that transport was and continues to remain a bottleneck. Therefore, farms must more widely utilize tractors with trailers in grass carting.

Rural rationalizers did a great deal for the mechanization and facilitation of labor in feed procurement. In my opinion, the new hay harvesting technology developed on the 9 Maya Kolkhoz in Paydeskiy Rayon deserves attention. Here, in contrast to other farms, the intention is to harvest hay without pressing it in bales and without tying it with a twine. The pickup press loads dry grass into the trailer moving next to it, which contains 3 to 4 tons of hay. The unpressed feed stored in sheds is subject to a forced active ventilation. Such technology should ensure a high quality of fodder and reduce losses of nutritive substances to a minimum.

I would like to especially dwell on the preparation of grass meal, because in a number of rayons its quality is extremely low. For example, in Khar'yuskiy Rayon last year 29 percent of the procured grass meal received the evaluation "without a category"--in other words, rejects--in laboratory analyses. This is not the fault of the weather, which we so often like to blame for our sins. I repeat, it is only a matter of violation of technology and, perhaps, of the time of grass mowing. If it is taken into consideration that the energy spent on the procurement of grass meal is 30 times greater than that spent on the procurement of hay, it is not difficult to calculate what such rejects cost. I don't mention the loss of raw materials--grass, of which we are short as it is. These losses should be put down to careless workers.

My advice to farms is as follows: Prepare grass meal at the time when grass contains the maximum carotene. At that time units must operate without stoppage--day and night.

Now we have preservatives for the storage of 410,000 tons of silage. This means that this type of feed should also be of a high quality. True, we are short of 300 batchers for the utilization of Finnish preservatives. However, scientists and rationalizers at the Scientific Research Institute of Farming and Reclamation and at the Scientific Research Institute of Animal Husbandry developed a batcher simple in design and execution, which can be manufactured on every farm. On the days of training of specialists of farms and of the rayon link, which were held at the end of May, we showed how to make these batchers, how to use them and how to apply the new preservatives.

I cannot say that all problems without exception have been solved and the feed procurement campaign will be smooth and without a hitch. In life everything is solved in a much more complicated way than on paper. Equipment is distributed on farms unevenly and the provision with personnel is different. Moreover, the personnel themselves--their skills and attitude toward the work entrusted to them--differ considerably. We cannot always provide farms with spare parts on the spot. In brief, the problems remain, there are still quite many of them and they will arise. On the whole, however, we have all the objective conditions for the procurement of a sufficient amount of feed of an absolutely good quality from grass under any weather conditions.

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LIVESTOCK FEED PROCUREMENT

PROGRESS, REQUISITES OF LATVIAN FEED CROP HARVESTING

Riga SOVETSKAYA LATVIYA in Russian 5 Jun 81 p 1

[Questions by L. Gol'tseva, correspondent of SOVETSKAYA LATVIYA, and answer by Ya. Ionikans, chief of the Administration of Feed Production of the Latvian SSR Ministry of Agriculture: "Feed Must Be Procured More Rapidly!"]

> [Text] Feed procurement is a responsible and urgent task for rural workers. All the conditions and opportunities for extensive, mass hay mowing have now been created. Farms now can and should create high-grade stocks of nutritive feed.
>
> What are the characteristics of present hay mowing?
>
> What should be done for the creation of reliable feed stocks?
>
> Ya. Ionikans, chief of the Administration of Feed Production of the Latvian SSR Ministry of Agriculture, answers these questions of our correspondent L. Gol'tseva.

Rapid rates and a high quality of work are the main conditions for success. The republic's kolkhozes and sovkhozes are beginning hay mowing in the first year of the new five-year plan in a good mood and with the desire to carry it out in an organized way. A total of 531,000 tons of hay, 204,000 tons of chop and grass meal, 1,104 million tons of haylage, more than 1 million tons of silage, more than 800,000 tons of straw and a great deal of other feed will have to be procured. In all, it is necessary to mow more than 515,000 hectares of grass, including cock's foot, which has already formed ears everywhere, on 39,000 hectares.

Clover is also growing rapidly. On the average, it is now 30 to 40 cm high. Farms in Yelgavskiy, Dobel'skiy, Tukumskiy, Rizhskiy and other rayons have begun hay mowing. As yet, however, not much has been mown down. We must not tolerate inactivity and waiting for a high grass stand. A second and then even a third hay crop can be obtained on areas that are rapidly harvested and well fed with nitrogen fertilizers.

The position of the administrations of agriculture of Ventspilsskiy, Valmiyerskiy and Stuchkinskiy Rayons, which scheduled the beginning of grass mowing for 10 June and haylage procurement for 15 June, is incomprehensible. In Stuchkinskiy Rayon the end of hay mowing was planned for 17 July. Of course, the ministry corrected these schedules. We cannot permit hay mowing to continue until the harvest season itself. Every day of delay takes away the nutritive value of grass.

As compared with last year, now it is necessary to increase the volume of procured feed by 60 percent. Supporting the appeal of workers in Rizhskiy Rayon for the further development of animal husbandry, the republic's kolkhozes and sovkhozes developed efficient measures for the period of feed procurement. For example, the following task was set on the Tervete Kolkhoz in Dobel'skiy Rayon: Every kolkhoz member not engaged in the weeding of sugar beets must procure 2 tons of hay for collectivized animal husbandry.

Special attention should be drawn to the operation of units for the production of grass meal. They should operate day and night so that every unit can produce no less than 350 tons of meal. I can judge from my own experience that this task is feasible--it is only necessary to organize work well. To retain carotene in grass meal, it is necessary to widely use the valuable preparation diluzine produced in Olayne.

To ensure a highly productive operation of all hay harvesting machines and mechanisms is a matter of honor of specialists of administrations of agriculture, kolkhozes and sovkhozes. There is sufficient equipment to procure feed better than last year. We must try to more rapidly mow not only cultivated pastures and meadows, but every meter of hayfields taken over by bushes, roadside strips, shoulders, ditches and so forth. Frame rakes should be prepared for no less than one-half of the mowed grass--under our conditions this is very important. We must certainly keep in mind the possibility for a regular operation of equipment in rainy weather.

On every farm it is necessary to constantly control the observance of technology at all the stages of feed procurement. There is a complication here--sampling. There is still a shortage of manual probes and, moreover, their quality is poor. The personnel of the shops of the Latvian Institute of Mechanization and Electrification of Agriculture manufacturing these probes must improve the quality of output.

A wide utilization of preservatives in feed procurement will also help to retain their value. Specialists are called upon to strictly see to it that technology is observed and that scientific experience is introduced.

The green conveyer must be now organized as best as possible for an increase in milk production. Many rayons improved this work during the last 10-day period in May. However, for example, in Gulbenskiy Rayon milk yield per cow was reduced by 0.5 kg during the third 10-day period in May and gross production was 4-percent lower than during the same time last year. Cheap summer feed is not fully utilized in Ventspilskiy Rayon, where the average milk yield per cow totaled 11.4 kg during the last 10-day period in May and was 12.3 kg last year.

Animal husbandry must truly be a shock front in rural areas--the decisions of the 26th CPSU Congress and of the 23rd Congress of the Communist Party of Latvia appeal to us for this.

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OVERVIEW ON LIVESTOCK, MILK PRODUCTION

Tallinn SOVETSKAYA ESTONIYA in Russian 28 Jun 81 p 1

[Article by Yuriy Kul'bin, ESSR deputy minister of agriculture: "Summer Milk"]

> [Text] From the practical standpoint last month rounded off the results for the period in which livestock are kept inside. At the editors' request, Yuriy Kul'bin, ESSR deputy minister of agriculture, tells about the work of animal husbandrymen during the first 5 months of this year.

As of 1 June average milk production per dairy cow on the republic's kolkhozes and sovkhozes was 1,482 kg, which is 1 kg more than at the same time last year. Gross milk output was 389,600 tons, only 0.6 percent higher than for the corresponding period of last year.

Whereas up to May the republic's farms as a whole showed a negligible increase, but still an increase, in dairy cow productivity, the average production in the last month was 354 kg of milk per dairy cow, that is, 2 kg less than in May of last year.

Farms in Pylvaskiy, Yygevaskiy, Tartuskiy, Vil'yandiskiy and Vyruskiy rayons especially lost ground. At the same time milk production on the kolkhozes and sovkhozes of Khaapsaluskiy and Kokhtla-Yarveskiy rayons was 24 kg and 13 kg, respectively, higher than in May of last year.

Recently an expanded meeting was held of the collegium of the ESSR Ministry of Agriculture to which chief rayon zootechnicians were invited. In the meeting a thorough analysis was made of the state of affairs with milk production, and specific ways of correcting the shortcomings were outlined. It was admitted that one of the reasons for the drop in dairy cow productivity in May was that practically everywhere the poor weather conditions caused the delay of approximately 1.5 weeks in leading the animals out to pasture.

To be sure, stocks of livestock feed were larger over the last winter housing period than a year ago, and theoretically it would have been possible to maintain dairy cow productivity by the most intensive use of concentrates. But it must be acknowledged that this would have been a temporary success which could not but have been reflected in the health of the animals just before they were driven out to pasture. And now that this has been mentioned, I cannot fail to mention that the scientists and specialists were unanimous in the opinion that it would have been wrong to increase milk production by increasing the strong feeds in the feed ration. And the only reason why this happened is that those responsible for supplying livestock feed are not furnishing the herd grass feeds in the necessary amounts and required quality.

The republic's animal husbandrymen face a crucial task during the summer months: achieving an average output of 400 kg of milk per dairy cow in June and July. This is no simple matter, but we are obliged to correct the situation, since the housing period did not yield the expected addition to output.

Principal attention should be paid to the most optimum use of green summer feeds. First of all, they are the most valuable for their content of nutrients, and secondly they are comparatively accessible and cheap. In addition, it is quite important that the animals spend time in the fresh air, which has a beneficial effect on their health.

We should say that on many of the republic's farms considerable experience has been acquired in summertime management of livestock, but there are still frequent violations of elementary requirements as to the grazing conditions of the animals. That is why I take the liberty to discuss certain of the most important of them.

One cannot discuss optimum use of pastures unless portion-by-portion grazing on pastures is organized. Sometimes farm directors refer to the shortage of wire for putting up fences. But this, I take the liberty to note, is only an excuse, since portion-by-portion pasturage can and should be organized quite successfully (eliminating all possibility of injuries to the animals) with electric fence, which there is enough of in the republic. We are losing a great deal of green feed because livestock are trampling down sizable areas of summer pastures. At this point I would like to note the need for meadows to be mowed at the right time. This in turn makes it possible to save on feed and guarantees an abundant aftergrowth. The rule is quite simple: Cut the grass before the livestock go to the summer pasture, when the livestock has left the summer pasture, send out the mowing machines again. To wait, as is done on some farms, until the grass on the pastures grows enough for making hay, is to display shortsightedness and mismanagement.

It is quite indispensable for herds to be sufficiently supplied with water. Otherwise there can be no question of raising the productivity of the animals. There must be salt and trace elements in the pasturage.

Maintaining the daily schedule is also quite an important factor. The animals must be kept on the pastures a minimum of 10 hours. Moreover, it is best to return them to the cowsheds during the hottest hours. This means that if necessary the milking schedule can be changed in the summer months.

As for organizing the production of summer milk on complexes where dairy cows are kept year-round, it is extremely important for them to bring green feed and feed it on time, and if possible it should be long-staple feed. The practice of dumping feed in cowsheds and of feeding the animals grass that has not been freshly mowed should be given up everywhere.

It is not possible to increase the gross output of milk without increasing the number of dairy cows given the strenuous assignments and high socialist obligations. The efforts of the zootechnical and veterinary services should now be aimed at successful insemination of the cows; after all, the summer months are the most suitable time for that. The culling of cows being milked should be delayed until autumn. I would note that in recent years a rather purposive effort has been conducted on the republic's farms to increase the number of dairy cows in the summer months. A persistent effort should be continued in that direction.

Meat production over the 5-month period was down somewhat from the corresponding period of last year. This naturally had an effect on fulfillment of plans for meat purchases, as is evident from the tables [Tables not included in this translation]. Average sale weight was down for both cattle (444 kg as against 448 kg last year) and also hogs. The best-conditioned cattle were sold by the farms of Rakvereskiy, Khar'yuskiy and Vil'yandiskiy rayons (470, 464 and 455 kg, respectively). Hogs sold by Khar'yuskiy (107 kg), Paydeskiy and Valgaskiy rayons (each 105 kg) weighed more than 100 kg. The cattle from Vyruskiy, Tartuskiy, Khaapsaluskiy and Valgaskiy rayons and hogs from the farms of Khaapsaluskiy, Kingiseppskiy, Rakvereskiy and Vyruskiy rayons were light in weight.

In a number of rayons the issue of reproduction of the herd is an urgent problem. This applies above all to kolkhozes and sovkhozes in Kingiseppskiy, Kokhtla-Yarveskiy, Raplaskiy and Tygevaskiy rayons. And the principal reason is that they have not conducted a thoroughly thought-out and planned effort to increase the number of animals. After all, this was a task set the republic's animal husbandrymen by the 18th Estonian CP Congress.

The summer months are a time of strenuous work by kolkhoz members and sovkhoz workers. As for livestock raisers, they have to make a maximum effort to fulfill plans and socialist obligations in the first year of the 11th Five-Year Plan.

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IMPROVEMENTS IN CATTLE BREEDING, REPRODUCTION RATES ENVISAGED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 6, Jun 81 pp 48-50

[Article by N. Reshetnikova, laboratory director, VNII [All-Union Scientific-Research Institute] of Breeding: "With a Consideration of the Reproduction of the Herd"]

[Text] In making the transition to an industrial base certain difficulties arise with the organization of the reproduction of the herd. Despite the fact that many enterprises, having introduced new technology for milk production, have increased the productivity of animals and the production of calves there are still many farms and complexes in which the reproductive capability of cows is decreasing and barrenness is increasing. It is not necessary to explain how this hinders the growth of production output in dairy farming. Farm workers must be concerned with curtailing the time needed for the first insemination, with increasing fertility and embryonic survival and with decreasing omissions of inseminations of cows because oestrus was not recognized.

As we know, the dry cow period is the determining period for continued reproduction, for producing healthy offspring and the largest milk yields. Numerous studies have determined that animals whose feeding and upkeep are physiologically stipulated during this period, all other conditions being equal, produce 500-600 kilograms more milk than cows that are not prepared for calving. In addition, each 100 cows produce 10-12 more calves. Violations in feeding and upkeep during the dry cow period cannot be corrected by improving conditions in subsequent periods. For this reason the rations of dry cows must have as many calories as those for cows with a daily milk production of 8-10 kilograms. Their average daily weight gain should equal no less than 500 grams.

One of the basic conditions for the proper preparation of cows for calving is the feeding to them of good hay. During the dry cow period, because of the special conditions involving metabolism, animals have a greater need for vitamins and minerals. In the absence of carotene, vitamins must be added to cow feeds. The doses of mineral supplements in complexes must be increased by 20 percent as compared with VIZh [All-Union Scientific-Research Institute of Livestock Breeding] norms.

In any system of upkeep of dry cows it is healthy to allow them to walk 3-4 kilometers in the course of 1-3 hours per day (depending on the weather). During the summer pasture upkeep of animals should be organized.

The proper organization of the birthing and postpartum periods also aids in curtailing the insemination period following calving.

The personnel in the maternity shop must be knowledgeable in the rules of obstetrics. Unfortunately, frequently obstetrical help is given too early and this becomes one of the reasons for a delay in expelling the placenta and for other complications. Obstetrical aid should begin only when the cervix uteri is completely dilated, when the amniotic fluid has drained and when the properly-located extremities of the calf have come through the vulva. In the case of a pathological birth the aid of a veterinary worker is needed. If the placenta is not expelled it must be removed no later than 24 hours after birth. The later removal of the placenta usually means a long period of barrenness for the animal. To treat the retained placenta in the maternity shop it is useful to organize the gathering and feeding to cows the embryonic liquid or warm salty water (200 grams of cooking salt per bucket).

With a large concentration of animals there is an increase in the number of cows with postpartum endometritis. On large farms and in complexes about 30 percent of cows suffer from this condition.

Postpartum endometritis is caused by standard pathogenic microflora. The improper and late treatment of this condition is one of the main reasons for delayed fertilization in cows after calving. It is for this reason that early gynecological treatment is necessary. Tests conducted by the workers of our laboratory have shown that drug treatment using a solution of Lyugol' excluded the possibility of postpartum endometritis and decreased the service period to 47 days. The timely and systematic treatment of acute and chronic endometritis with the aid of a 20-percent solution of ASD fraction 2 with antimicrobial agents directly into the uterus has enabled us to decrease the treatment time to 12 days and to inseminate the animals 30-40 days after recovery.

Only healthy animals can be transferred to the milking and insemination shop. Sick cows from the maternity shop should be transferred to the isolation quarters.

In the milking and insemination shop cows must be inseminated during the optimal period. A delay in the schedule of the first insemination results in the prolongation of the service period.

Ovarian hypofunction is observed in 25-34 percent of cows receiving unbalanced rations (especially if there is a shortage of vitamins and minerals) and unable to take regular walks. For this reason, oestrus in cows should be stimulated. It is important to improve feeding and to include sugary feeds (root crops, hay, malted concentrates) and vitamin and mineral supplements in rations. It is helpful to organize regular exercise routines. If these measures do not yield results it is necessary to stimulate oestrus using drugs--SZhK (2,500-3,000 units), ASD fraction 2 in paratyphoid serum (10-percent solution in a dosage of 15-20 milliliters per injection) or colostrum in a dosage of 20-25 milliliters under the skin twice every 7 days. In young cows colostrum from the second milking must be used, or if the placenta is removed, no later than 6 hours after calving. Uterine massage is also effective in the case of ovarian hypofunction.

Each cow that does not demonstrate oestrus in the course of 30-45 days after calving must be carefully examined.

The inter-calving period can be curtailed by increasing the insemination rate during a single oestrus cycle. As the analysis of the work of technologists-inseminators indicates, the insemination rate of cows per oestrus cycle is 50 percent. However, many specialists achieve higher indicators. For example, Z. Belova, artificial insemination technologist at the Mar'inskaya Poultry Factory of Moscow Oblast, inseminates 82 percent of her animals during one oestrus cycle. During the last five-year plan the output of calves on her farm comprised 98.5 percent. Milk yield increased by 700 kilograms.

An increase in the percentage of animals inseminated basically depends on the selection of the optimal time for insemination during the oestrus cycle. We have determined that in inseminating cows without regard to their sexual systems, the pregnancy rate is 30-40 percent; with this consideration--70-82 percent.

A great deal depends on the conditions for storing and unfreezing the sperm of bull sires. No more than three doses should be unfrozen at one time so that they could be used within 15 minutes. A longer storage period for unfrozen sperm decreases its insemination capability. Incidentally, this capability can vary widely from bull to bull. It can be best determined by the results of the primary insemination of cows during the third month following calving in enterprises with the best conditions for diet and upkeep.

Efficient insemination also decreases embryonic death. In complexes fetal losses comprise an average of 20 percent of fertilized ovicells. Losses are especially large if there is a shortage of Vitamin A in feed. It is most effective to introduce it in feed prior to insemination. This increases the pregnancy rate in infertile cows by 39 percent as compared with animals that are not treated. The introduction of the vitamin during the period of organogenesis (on the 20th, 25th and 30th days after insemination) forestalls embryologocal death during the period of placental formation and increases the pregnancy rate by 29 percent.

Under the conditions of industrial technology for milk production, insemination is frequently missed because oestrus has not been established. An analysis of the intervals between insemination demonstrate that in repeated inseminations 20-50 percent misses of oestrus in cows do occur (the number of double cycles lasting 36-50 days). For this reason alone the service period is doubled and many fewer calves are produced than possible. For example, with a 40 percent pregnancy rate per oestrus cycle an insemination miss in 20 percent of the cows decreases the output of calves by 4.5 percent; a miss of 40 percent--a decrease of 11.9 percent.

It is essential to check cows for oestrus three times per day. The signs of oestrus should be looked for while the animal is at rest; of the non-motility reflex --while the animal is exercising. All inseminated cows must be checked for a second oestrum from the 18th to 25th days after insemination.

The situation with herd reproduction is improved if the farm develops a plan with a consideration of primary and secondary inseminations. The basis for the plan is the calving plan for a particular month and actual preganancy rates during insemination.

For example, in planning insemination in January it is necessary to consider the calving goals for October. If in October 80 calves are expected and the average pregnancy rate in the complex is 40 percent then in January it is necessary to conduct 200 inseminations.

After pregnancy has been established the cows are moved to the milk-production shop. Here attention is focused on prophylactic abortions and embryological death. During the 4th or 5th month of pregnancy an additional rectal examination is made. Before the cow is released precise information about the pregnancy must be collected.

In general these are the most important measures enabling us to better organize the reproduction of the herd under conditions of industrial technology and in the final analysis to increase the productivity of the reproductive herd of cattle.

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DEVELOPMENT OF INDUSTRIAL SHEEP-RAISING COMPLEXES VIEWED

Alma-Ata SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 5, May 81 pp 22-23

[Article by M. Asanov, candidate of economic sciences: "Industrial Type Complexes for Sheep Raising"]

[Text] Modern sheep-raising complexes-enterprises are of a new type. Production facilities, veterinary structures, engineering-technical equipment, the machine system and lands are united in a single technological process and are directed at the production of sheep-raising products within the boundaries of one or several enterprises or member enterprises.

Sheep-raising complexes can be subdivided into the following: 1--complexes with a closed production cycle which foresees the entire cycle of operations needed from the reproduction of the herd to producing the final product and selling it; 2--complexes specializing in one type of production (producing offspring, raising replacement young, fattening young animals and adult sheep). Complexes in open cycles can further be subdivided into breeding and market complexes according to their production assignment.

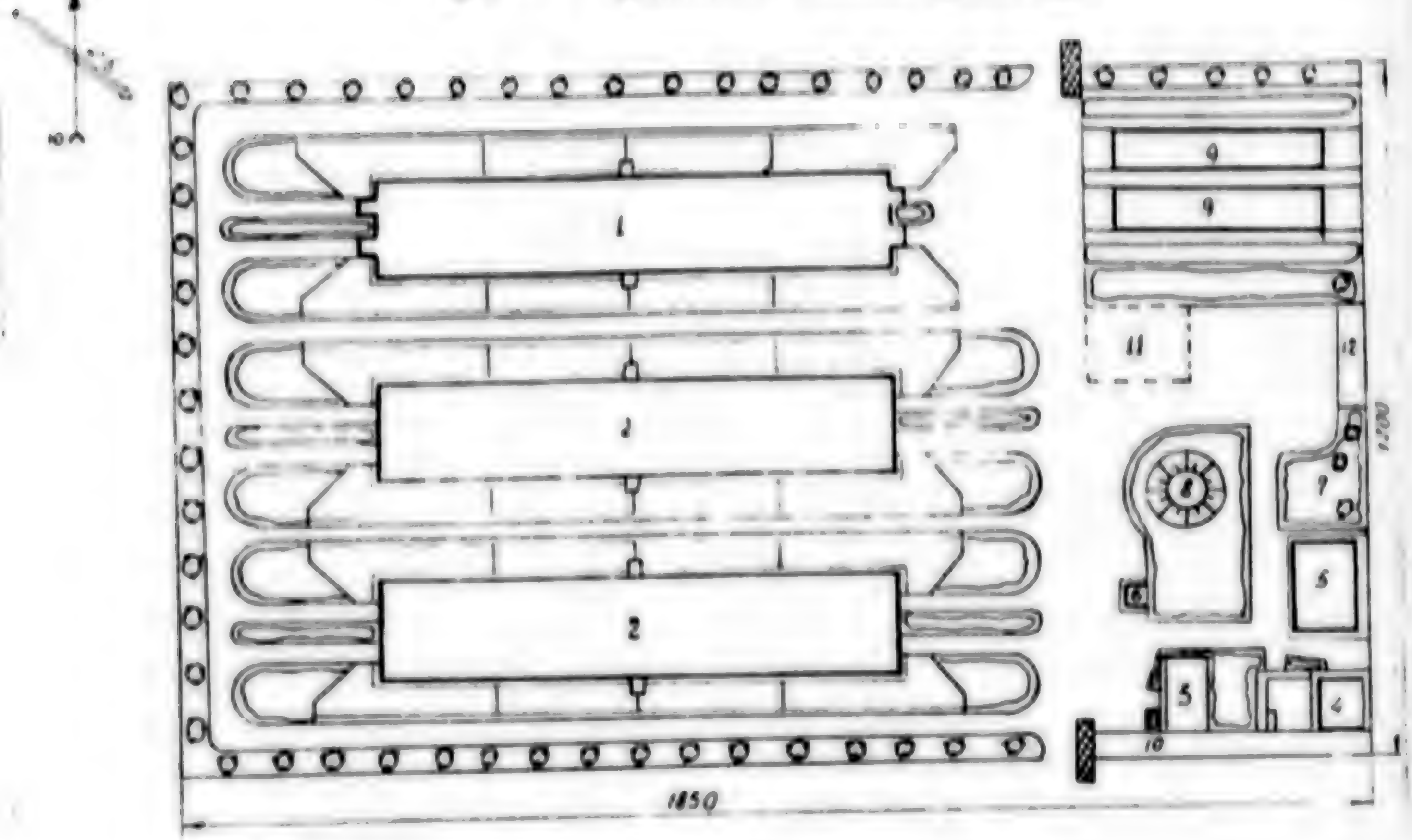
The planning institutes in the nation have developed model and experimental designs for complexes of various capacities. Let us examine one of them, a complex for 2,500 ewes. The scheme for the general plan of the complexes(TP-803-104) is included, with the following key:

1--sheepyard for 835 dams for the purpose of lambing; 2--sheepyard for 835 dams with lambs; 3--brigade house for 10 persons with a decontamination center; 4--isolator for 20 animals; 5--artificial insemination point for sheep; 6--scales for automatic weighing of loads up to 10 tons; 7--transformer substation KTP 40-10; 8--water reservoir with a capacity of 150 cubic meters; 9--trench for haylage storage; 10--disinfection barrier; 11--platform for feed shop; 12--platform for agrotechnology.

This sheep complex is planned for the upkeep of dams for wool and meat-wool purposes, for pasture-stall maintenance with the cyclic insemination of dams.

Within buildings the dams will be fed from mobile troughs. When the animals are outside on platforms they will be fed from concrete troughs that will be filled with the aid of the RMM-5.0 feed distributor. Drink will be provided in group automatic drinking dispensers. Within the building the sheep are kept on litter.

СХЕМА ГЕНПЛАНА **GENERAL DESIGN PLAN**



Key included in text.

The hair of the animals is shorn and the animals are washed in tubs located in the shearing point.

Similar architectural-planning solutions and maintenance technologies were used in model designs for 3,000 dams used for wool-production purposes (TP-802-102). There are only a few differences in the size of facilities and in the number of buildings and structures that are included within the complex.

Complex mechanization of production processes, the cyclic nature of insemination and the efficient organization and wage payments are characteristic of all recommended technological schemes for industrial sheep-raising. Moreover, in organizing complexes, many problems of a social nature are solved in a positive manner--the creation of better conditions for work and relaxation and improvements in the cultural and personal conditions for workers in sheep-raising. For example, the physical load per worker in the complex is 2.5-3 times smaller than that on workers in regular shepherd's brigades.

One of the most important elements of industrial technology in sheep-raising is the efficient utilization of various types of feeds which are subject to mechanized distribution. During the winter period the dams are maintained primarily on haylage, silage, monofeeds and granulated mixtures. Whereas in traditional technology 4.4 man-hours, or 63 percent of work time, is expended for feed distribution, under conditions of industrial technology only 0.61 man-hours, or 8.7 percent of work time, was utilized for feed distribution.

The continued development of sheep-raising in the republic will be closely related to its transition to an industrial base and to an expansion of construction of large mechanized farms and fattening platforms. According to the data of the USSR Ministry of Agriculture, by 1990 40 percent of the wool produced in the country will be obtained from sheep-raising complexes.

During the 11th Five-Year Plan 4.2 billion rubles, or 10 percent more than during the 10th Five-Year Plan, were allocated for the development of sheep-raising in the Kazakh SSR alone. These government-allocated resources must be utilized efficiently.

At the present time the republic's enterprises have built and put into operation over 460 fattening platforms for 2.6 million sheep and 25 mechanized dam farms for 104,000 animals. Considerable experience in the construction and operation of such complexes has been amassed in the enterprises of Stavropol'skiy Kray, in Alma-Atinskaya, Taldy-Kurganskaya and Semipalatinskaya oblasts.

However, it should be noted that the directors of sheep-raising enterprises are not yet moving willingly toward more progressive methods of sheep maintenance, pointing to the expense of constructing and operating sheep-raising complexes. For this reason the level of production output in complexes still does not meet the growing needs of today's national economy. The construction of complexes for maintaining dams and raising lambs is developing particularly slowly.

We feel that the following are the main factors holding back the practical utilization of designs and the construction of complexes.

In this republic where 23 percent of the country's sheep herd is concentrated and where because of the natural-economic conditions many enterprises have specialized in the production of sheep-raising products (there are about 600 of these enterprises), there are few people involved in design development. In Kazgiprosel'khoz [Kazakh agricultural planning institute] and its affiliates there is almost a total absence of departments for planning sheep-raising complexes and existing designs are not adapted to local conditions of a particular enterprise. The development of designs for complexes in Kazakhstan has been assigned to the institutes of Stavropol'giprosel'khozstroy [Stavropol' planning institute of agricultural construction] and TsniiEPovtseprom [Central scientific research institute for design and experimental planning in the sheep-raising industry] (city of Frunze).

Existing designs for complexes are characterized by the high cost of one sheep place and model production structures are made basically from ferroconcrete members. Taking into account the vertical zonality of climatic conditions in a number of cases plans were made for utilizing light carrier structural members and for managing with awnings alone. This is not without danger--there have been cases in which the canopy collapsed because of incorrect design calculations and because the massive snow cover in winter was not considered. In a number of places the high humidity of the outside air resulting in the separation of glued sections. In addition, the use of ferroconcrete for the walls and ceiling resulted in steam condensation and the microclimate in the facility was violated. All of this had a negative effect on the health of animals and the quality of their wool.

The planning and construction of sheep-raising complexes in the republic's enterprises usually proceed without an economic basis for the long-ago predetermined production specialization.

The availability and utilization of low-productivity pastures in enterprises and poor water supplies hinder the development of an industrial technology for feed production, which is the basis for the industrialization of the branch. This is related to large capital investments for the development of cultivated pastures, for enclosing them and for providing them with water supplies.

We must think about this today. The workers in sheep-raising have a large goal--to increase the herd of sheep in Kazakhstan to 50 million. Already now with the aid of modern research methods and of electronic computers it is possible to find the optimal solutions for production specialization in sheep-raising, to determine the best variant of the sheep-raising enterprise and to create the optimal model of the complex.

Consequently, many collectives of scientific-research and educational institutes and experimental stations as well as planners from Kazgiprosel'khoz and its affiliates must participate in developing the technology and production mechanization for sheep-farming on an industrial basis. The main institute of KazNITIO [Kazakh scientific research technical and engineering institute] must develop a single coordinated plan of scientific research and by means of a complex approach it must unify and direct the efforts of scientists, specialists and leading workers toward solving the given problem. Ovtseprom [institute of the sheep-raising industry] of the Kazakh SSR Ministry of Agriculture must announce competition for the best plan for a complex. The conditions for the competition must be included.

Under conditions of concentration and specialization of the herd of sheep and of making the transition to an industrial basis it is important to utilize all possibilities for increasing the production of mutton and wool and for raising this branch of livestock raising to a new level.

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COMPLETION OF SHURCHINSKIY GRAIN PRODUCTS COMBINE DELAYED

Urgent Measures Required

Moscow EKONOMICHESKAYA GAZETA in Russian No 22, May 79 p 19

[Article by A. Ladukhina, worker for oblast newspaper LENINSKOYE ZNAMYA and V. Putskov, manager of oblast office of Stroybank, Shurchi Village, Surkhandar'inskaya Oblast: "Not On Schedule"]

[Text] The Shurchinskiy Grain Products Combine in Surkhandar'inskaya Oblast of Uzbekistan is an underway project for this current year. It will be the largest storehouse in the oblast. It will have a capacity for 114,000 tons of grain. The complex includes a mill capable of processing 600 tons of grain daily. As a result, there will no longer be a requirement for importing mixed feed from other oblasts of the republic.

The task of erecting the combine has been assigned to the collective of Construction Train No. 3 of the Spetselevatormel'stroy Trust of the Ministry of Construction for the Uzbek SSR. How is construction proceeding on this ongoing project? The plans are not being fulfilled for even one installation of this start-up complex. The construction of certain silos, a secondary-auxiliary building, a boiler room and heating networks is proceeding extremely slowly.

A great amount of work remains to be carried out at the project by the sub-contracting organizations -- the Termez PMK [mobile mechanized column] (Chief A. Istomin) of the Uzsantekhgazmontazh Trust and the Denau Installation Administration (Chief R. Narkuziyev) of the Promenergomontazh Trust. But, owing to the fact that the general contractor did not present them with the required front of work in a timely manner, they fell considerably behind their schedule. Here "assistance" was furnished by the Board of Directors of the enterprise under construction, which supplied some of the technological equipment required.

[illegible] a brief period of time remains before the project is placed in operation. According to the schedule -- the third quarter of 1979. Thus the leaders of Construction Train No. 3 and the sub-contracting organizations must undertake urgent measures aimed at improving the organization of labor at the project and accelerating the work rates.

Project Completion Measures

Moscow EKONOMICHESKAYA GAZETA in Russian No 29, Jul 79 p 18

> [Text] The Deputy Minister of Construction for the Uzbek SSR, Yu. Chernov, comments upon the article entitled "Not on Schedule" (Issue No. 22 of the weekly):

The article published under the headline "Not on Schedule," in which shortcomings noted in the construction of the Shurchinskiy Milling Combine were noted, was discussed by the Board of Directors of the Ministry of Construction for the Uzbek SSR, jointly with the republic's Ministry of Procurements. The criticism was adjudged to be correct.

Measures were outlined for accelerating the construction work at the project. A decision was handed down calling for the rapid placing in operation of elevator capacities for 36,000 tons and the mill -- in October of this year.

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REGIONAL DEVELOPMENT

PROBLEMS IN CONSTRUCTION OF GRAIN STORAGE FACILITIES IN UZBEK SSR

Construction Completion Delays

Moscow EKONOMICHESKAYA GAZETA in Russian No 38, Sep 79 p 18

[Article by P. Antonov, Tashkent: "The Builders Did Not Do Their Part"]

[Text] Despite the difficult weather conditions experienced this year, the grain growers of Uzbekistan have developed a fine harvest of grain crops. The harvesting work was carried out rapidly and in an organized manner.

But how well were the state granaries prepared to receive the rich harvest? An answer was furnished for this question by the Minister of Procurements for the Uzbek SSR, Khushvakht Radzhabovich Kuybakarov:

"We were allocated roughly 30 million rubles for the construction of various grain receiving enterprises during 1979. But these funds are being employed in a weak manner. The principal cause -- unsatisfactory work by the construction trains of the Spetselevatormel'stroy Trust (Manager A. Nosarev) of the republic's Ministry of Construction. During 7 months of this year, the trust's subunits should have carried out 6.7 million rubles worth of construction-installation work, but actually they completed only 5.3 million rubles worth.

"I will mention only those projects which, according to the plans, were to be placed in operation this year.

"The elevator in the city of Dzhuma (Samarkandskaya Oblast) should have been placed in operation during the second quarter, but there was an endless amount of work to be completed here. A silo for containing 18,000 tons of grain has not been completed. The contractor has not commenced the work of developing the station track. Since the beginning of the year, only one half of the funds allocated for the project have been used. The placing in operation of the Shurchinskiy Grain Products Combine (Surkhandar'inskaya Oblast) has been delayed. Owing to a low degree of construction readiness, the client is unable to supply 350,000 rubles worth of equipment required for installation.

"The construction of mechanized granaries representing an overall capacity of 100,000 tons is being carried out in various areas throughout the republic. The majority of them are being erected by Construction Train No. 1 (Chief L. Tsakulov). The worst work being performed by this collective is at Karakul' and Kyzyltepa Stations in Bukharskaya Oblast. Since the beginning of the year, only 52,000 rubles instead of 182,000 have been used at Karakul' and at Kyzyltepa -- only 90,000 instead of 225,000.

"Construction Train No. 6, the chief of which is A. Aytdzhanov, operates in the Karakalpakskaya ASSR. The collective is systematically failing to cope with its tasks for building a mechanized granary at Railroad Siding No. 181 and a feed mixture shop having a productivity of 100 tons daily at the Takhnatash Grain Products Combine. This is the third year that the schedule for placing this shop in operation has been postponed.

"In addition to the Spetselevatormel'stroy Trust of the republic's Ministry of Construction, other construction organizations also serve as the general contractors at a number of our projects. The following are considered to be the least conscientious organizations: Trust No. 11 (Manager V. Volkov) and Trust No. 21 (Manager B. Yakubov) of the republic's Ministry of Rural Construction and also the Karakalpakskaya Territorial Administration (Chief D. Palvanov) of Glavsredazirsovkhozstroy.

"It is expected that the leaders of these ministries and departments will undertake all of the measures required of them, in the interest of ensuring that the rich harvest grown and gathered in by the grain growers of Uzbekistan is fully protected.

Corrective Measures Undertaken

Moscow EKONOMICHESKAYA GAZETA in Russian No 47, Nov 79 p 19

> [Text] The Deputy Minister of Construction for the Uzbek SSR, Yu. Chernov, comments upon the article entitled "The Builders Did Not Do Their Part" (Issue No. 38 of the weekly):

This article was discussed during a special meeting of the Board of Directors of the republic's Ministry of Construction, to which the chiefs of the construction trains and leading workers of the Ministry of Procurements had been invited. The critical comments addressed to certain contractual organizations in this article are adjudged to be correct

As a result of measures undertaken, based upon the results of 9 months of this year, the republic's Ministry of Construction has ensured the ahead-of-schedule placing in operation (by 3 months) of five production projects: an elevator for a milling combine at Shurchi and mechanized granaries at grain receiving enterprises in Gazalkent, Bogata, Chinaz and at Siding No. 181.

7026
CSO: 1824/320

REGIONAL DEVELOPMENT

PROGRESS, PROBLEMS IN GRAIN ELEVATOR CONSTRUCTION IN UZBEKISTAN

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 80 p 19

[Article: "Prolonged Lagging Behind"]

> [Text] Last year the Spetselevatormel'stroy Trust of the Ministry of Construction for Uzbekistan did not fulfill its plan for placing procurement enterprises in operation. Of thirty installations, only one half were introduced into operations. The following facilities were not placed in operation: an elevator at Kuva, granaries at the railroad stations of Karakul', Kyzyltepa, Nagornaya, Chinaz, at Siding No. 16 and also a carbamide concentrate shop at the Kagan Grain Products Combine. Why has such a great lag been tolerated? Such was the question which our correspondent addressed to the Deputy Manager of the Spetselevatormel'stroy Trust, B. Permyakov.

Certainly, we are primarily responsible for the disruption that has taken place in the placing of installations in operation. We were unable to create the conditions required for rhythmic operations by the builders. Here a strong role was played by the great dispersion of the installations and their remoteness from the areas in which the principal resources of the contractual organizations were concentrated. Thus Construction Train No. 1, which is based in Dzhambayskiy Rayon in Samarkandskaya Oblast, over a period of several years built large installations which were located not far from one another: the Dzhambul Milling Combine and the Dzhuma Elevator. Last year, relatively small granaries which were scattered among three oblasts in Uzbekistan were added to these installations. The distance to the furthest installation -- the granaries at Karakul' Station -- is roughly 300 kilometers. This inhibits beyond any doubt the management of the construction operations and the efficient elimination of shortcomings and problems.

Moreover, during the Ninth and at the beginning of the Tenth Five-Year Plans, the organizations of the trust erected only large-scale enterprises, or as we referred to them "million ruble projects." And here there was room for both ourselves and our sub-contractors. But last year small granaries valued at 200,000 rubles each were erected. Unfortunately, a number of contractual organizations were not prepared to carry out this new type of work.

This year our builders are confronted by strenuous tasks. In addition to projects which were not placed in operation last year, six other projects must also be turned over for operation. Thus we are concentrating a great amount of effort at the present time aimed at ensuring that our forces and resources are employed on projects already underway.

In order to alleviate our task to some degree, the republic's Ministry of Construction released the trust this year from all work not associated with the procurement system. There can be no doubt but that this decision was correct. However...

Our trust has been in existence since 1966. During this period of time, a strong collective has developed. It includes many excellent workers and experienced engineers and technicians. The trust handles an annual program of construction work amounting to 20 million rubles. But this year the program will not reach 9 million rubles. In this way, the trust is automatically converting over from the first to the third category. Is this right?

Having drawn the necessary conclusions from the lessons of last year, the leaders and specialists of the trust are directing the efforts of their organizations towards the unconditional fulfillment of the plans for erecting projects already in progress. A competition has unfolded among the brigades for efficient observance of the construction schedules and high quality construction of the procurement enterprises.

7026
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CONSTRUCTION, METAL CONSUMPTION PROBLEMS IN UZBEK SSR DISCUSSED

Tashkent PRAVDA VOSTOKA in Russian 21 Jan 81 p 2

[Article: "In the Republic Committee"]

[Text] For the preservation of grain and the seed of oil-bearing crops from the 1980 harvest, the ministries of procurements, construction and rural construction placed in operation mechanized granaries having an overall capacity in excess of 32,000 tons. An elevator was built at Kuva, a mill and storehouse for finished products at Shurchi, a concentrate shop in Kagan, a shop for the production of mixed feeds in Karakul' and other projects.

Nevertheless, an inspection has revealed that the rates for the construction of projects of the Ministry of Procurement are still low. Not all of the construction subunits are carrying out their established tasks. Thus the Ministry of Construction for the Uzbek SSR did not supply the construction projects completely with the logistical resources needed, with precast reinforced concrete and metal structures or with the required manpower. It was for these reasons that individual projects were not placed in operation in a timely manner.

Construction work on a number of projects has been dragged out: a seed cleaning shop at the Galiyaaral Elevator, mechanized granaries at Chinaz and Kyzyltepa and mills at the Fergana Grain Products Combine. Subunits of the Spetselevatormel'stroy Trust did not correct imperfections detected in projects which were placed in operation earlier, particularly at the elevators at Dzhuma and the Takhiatash Grain Products Combine and at shops built at Chigirik and Gazalkent.

The republic's Ministry of Construction did not fulfill its plan for the construction of housing and childrens' pre-school institutes, nor did it provide sufficient construction materials, metal structures or manpower for projects the construction of which was already underway. In turn, the client, the Ministry of Procurement and its representatives in the various areas, did not supply planning-estimates documentation, electrical engineering equipment and materials to complexes which were already under construction in a timely manner.

The republic committee directed the attention of the leaders of the ministries of construction and rural construction to the low work rates for erecting projects of the Ministry of Procurement.. The Deputy Minister of Procurement , Comrade Trapani, was informed regarding the fact that the projects under construction were being supplied with planning-estimates documentation, equipment or special materials on a timely basis.

being supplied with planning-estimates documentation, equipment or special materials on a timely basis.

For repeated disruptions in the plan for placing in operation a number of projects of the Ministry of Procurement , for low work rates and quality in the carrying out of construction-installation work and for delays in correcting imperfections in projects placed in operation earlier, the director of the Spetselevatormel'stroy Trust, Comrade Nosarev, was reprimanded. For failure to exercise proper control over the course and quality of the construction-installation work, the chief of the Main Administration for Capital Construction of the Ministry of Procurement , Comrade Sokolov, was also reprimanded.

Metal Economies

The committee organized an inspection to study the manner in which metal was being used at a number of enterprises throughout the republic. It turned out that this strictly funded material is being wasted in particular at plants in Andizhan -- machine building and irrigation machine building plants.

The accounting for metal receipts and expenditures and its storage has been organized in a very unsatisfactory manner at the plant for irrigation machine building. Large supplies of metal are being created at the enterprise and excessive expenditures of metal and pipe are being tolerated in the production of many items. At the machine building plant, the expenditure norms for parts and the norms for releasing metal to the departments have not been regulated and the coefficient for its use, for many types of items, is one and a half to two times lower than the average indicator for the ministry.

The measures aimed at achieving economies in the use of metal, composed at these enterprises, do not fully take into account the reserves available for such economies. They do not call for the introduction of modern low-waste product technological processes or accurate castings. No purposeful work aimed at reducing metal consumption is being carried out at the plant.

Very little concern is being displayed for the thrifty use of materials at the Tashkent excavator or Samarkand elevator construction plants. Serious violations of fund discipline are being tolerated. Thus, at the excavator plant, despite a considerable deficit in rolled metal, more than 80 tons and approximately 2,000 linear meters of pipe were released to outside organizations.

For mismanagement and systematic non-fulfillment of the tasks for economizing in the use of metal, the directors of the Andizhan machine building and irrigation machine building plants, Comrades Anikin and Pak, were reprimanded.

The committee reprimanded the Deputy Director of the Tashkent Excavator Plant, Comrade Yukel'son, for having violated fund discipline. The Director of this plant, Comrade Radzhapov, and the Director of the Samarkand Elevator Construction Plant, Comrade Rozentsvayg, were informed that no measures had been undertaken at the plant aimed at carrying out the tasks concerned with realizing economies in the use of metal.

The committee has required the leaders of the mentioned enterprises to discuss the results of the inspection in their collectives and in the future to utilize their metal in a thrifty manner.

7026
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IMPERFECTIONS IN CONSTRUCTION OF NEW GRAIN ELEVATOR SCORED

Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 79 p 19

[Article by L. Tokarev, head of Industrial Department of Samarkandskaya Oblast newspaper LENINSKIY PUT', Dzhuma, Samarkandskaya Oblast: "Projects With Imperfections"]

[Text] Last year, for the very first time, 34,000 tons of grain were poured into the silos of the Dzhuma Grain Products Combine. The capabilities of this enterprise have been placed in operation individually over the past 2 years. The construction project has still not been completed. Its planned capability -- 113,000 tons of grain; as yet it can accommodate only 95,000 tons.

The general contractor for the construction project is Construction Train No. 1 (chief L. Tsakulov) of the Spetselevatormel'stroy Trust of the Ministry of Construction for the Uzbek SSR. The planners, the general contractor and the subcontracting organizations share the blame for the fact that the projects already placed in operation contain approximately 500 imperfections.

"We are especially alarmed" stated the secretary of the party organization of the combine Kh. Fetislamov, "over the fact that, during rainfall, water enters the building on the windward side through openings between the sectional elements. thereafter it enters the compartments and reaches the silo bins."

Why does the water enter the elevator? The specialists believe that this occurs owing to two reasons. First of all, incomplete work on the part of the planner -- the Alma-Ata Gosniisredaspromzernoproyekt Institute (Director R. Ibrayev), who made no provision for the required structural protection. Secondly, the poor finishing off of the joints between the sectional elements. And this was the fault of the builders themselves.

Work has not been completed in connection with the installation of a sewage-pumping station and contact reservoir. In this instance, a great amount of work still remains to be carried out by the Samarkandkhimstroy Association (Chief B. Rakhimov). It is very difficult to enumerate all of the large-scale imperfections and incomplete items of work. Overall, they amount to 150,000 rubles worth of work.

Before long the elevator will begin to receive grain from the new harvest. Thus the collective of Construction Train No. 1 must undertake the measures required to correct as rapidly as possible the existing shortcomings and imperfections. Moreover, the Spetselevatormel'stroy Trust is primarily responsible for controlling the rapid completion of this work.

7026
CSO: 1824

AGRO-ECONOMICS AND ORGANIZATION

LONG-TERM LAND RECLAMATION PLANS FOR UKRAINE OUTLINED

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 5, May 81 pp 12-19

/Article by V. Katran, Ukrainian SSR deputy minister of land reclamation and water resources, V. Zhmin'ko, candidate of economic sciences, and V. Tregobchuk, candidate of economic sciences: "The Party's Plans for Land Reclamation Are Being Realized"/

/Text/ The 26th CPSU Congress, which completed its work recently, developed and approved the strategy and tactics of the country's economic and social development in the 1980's. As in the 1970's a further rise in the standard of living of the Soviet people is the core of the party's economic policy. Land reclamation is to play an important role in the attainment of this goal. Plans have been made to put to use 3.4 to 3.6 million hectares of irrigated land and 3.7 to 3.9 million hectares of drained land (including 500,000 to 510,000 hectares and 640,000 to 680,000 hectares respectively in the Ukrainian SSR) and to water 26 to 28 million hectares of pastures in desert, semidesert and mountain regions with state capital investments alone during the 11th Five-Year Plan. The task of attaining an all-around increase in the efficiency of utilization of irrigated and drained land, of shortening the periods of attainment of the planned yield on it, of raising the technical level and quality of construction of waterworks and of continuing to ensure an overall performance of work on land reclamation and its agricultural development was set for water management and agricultural bodies, kolkhozes and sovkhozes. At the same time, measures for an efficient expenditure of water for the needs of agriculture and for an improvement in the reclamation state of irrigated and drained land should be implemented.

Thus, the 11th Five-Year Plan will become an important, new step in the implementation of the long-term specific program for the development of land reclamation adopted 15 years ago by the May (1966) Plenum of the CPSU Central Committee. V. I. Lenin's ideas on an extensive performance of irrigation and drainage operations and on radical measures for the control of drought and floods were realized in the decisions of this plenum and in L. I. Brezhnev's speech in it.

The historical importance of the May Plenum of the Central Committee of the Party lies in the fact that it not only determined the special place of land reclamation and water management in the system of statewide measures aimed at the further acceleration of the development and intensification of agricultural production and advanced the work on a fundamental improvement of land and rise in its fertility to the level of the most important national economic tasks, but outlined the goals for the transformation of land in all the country's farming regions during the immediate period and a more distant future as well. "The extensive program for land reclamation, rise in the standard of farming and on this basis increase in the yield of agricultural crops," noted L. I. Brezhnev at that plenum, "is one of the important components of the construction of the material and technical base of communism."[1]

The economic essence of the long-term land reclamation program lies in the fact that its realization makes it possible to fundamentally increase the productivity of land, to raise the gross output of agricultural products and to transfer their production to a qualitatively new basis with a simultaneous significant reduction of the dependence of agriculture on climatic conditions. Reclamation construction contributes to the establishment of an improved material and technical base of agricultural production and the role of irrigation and drainage of land in the solution of the food problem and rise in the people's well-being increases constantly.

In their scale the volumes of reclamation work performed in the last few years have no equal in our country or in world practice. At the same time, the party proceeded from the fact that the attained level of development of the national economy, in particular of industry, made it possible to implement a set of important measures for a rise in soil fertility and in the standard of farming and for extensive land reclamation both on a statewide scale and on every kolkhoz and sovkhoz. Describing the specific land reclamation program, L. I. Brezhnev stated the following: "We must realize and firmly tell the entire party and nation that this is not a current campaign. This is a program in the area of agriculture designed for a long period, a program requiring vast efforts and considerable capital investments and material and technical assets. It is based on the data of science and practice and on the realistic capabilities now available to the Soviet economy."[2]

In fact, land reclamation was first included among the major links of the party's present agrarian policy and among the components of intensification of agricultural production at the May Plenum of the Central Committee. The problem of land irrigation on large areas in the country's arid steppe zone for the purpose of establishing large regions of guaranteed grain production and increasing rice production there, of the transfer of vegetable growing on this vast zone to irrigated land and of the construction in all regions of improved engineering irrigation and drainage systems ensuring optimal soil moistening and an economical expenditure of water resources was also raised for the first time.

Simultaneously with an expansion of the scale of hydroreclamation construction the task of accelerating the rates of scientific and technical progress in a given oblast was set. The new strategy in the technology and techniques of land reclamation envisaged the establishment of an improved irrigation network, automation of water distribution, mechanization of irrigation, use of horizontal and vertical closed drainage and all-around mechanization of maintenance work on irrigation and drainage systems.

During the past period irrigation and reclamation construction was placed on a firm industrial basis, the output of highly productive construction and reclamation machines and mechanisms was increased and hundreds of new water management construction organizations were established. Owing to this, the rates of reclamation work were accelerated and its quality was improved, the technical level of the irrigation and drainage systems under construction rose considerably and significant progress was attained in the mechanization of such a labor intensive process as the watering of agricultural crops. Modern irrigation systems built on a high technical level make it possible to save up to 200,000 cubic meters of irrigation water and 8 to 10 hectares of land per 100 hectares of irrigated area.

Of great importance was the party's principle for the construction of reclamation systems in combination with measures ensuring a prompt development and an intensive utilization of irrigated and drained land. The principle of overall nature of both reclamation construction itself and of the development of reclaimed land envisages the coordination in one planning and technological cycle of the construction of reclamation and agricultural projects, housing, buildings for cultural-general purposes, medical institutions, vocational and technical schools and special educational institutions, as well as the performance of work on electrification, gasification, road construction and so forth.

As in the past special attention is now given to problems of an all-around participation of industry in the solution of problems of acceleration of the rates of reclamation construction, rise in the technical level of irrigation and drainage systems and improvement in the utilization of reclaimed land. The decree dated 27 May 1966 of the plenum "On an Extensive Development of Land Reclamation for the Production of High and Stable Harvests of Grain and Other Agricultural Crops" pointed out that industrial workers and managers of ministries and departments must do their utmost to fulfill and overfulfill the plans for providing kolkhozes, sovkhozes and water management organizations with the necessary high-quality equipment, machinery, fertilizers, toxic chemicals, various materials and other goods for production purposes and take every measure for an unconditional fulfillment of orders for rural areas by industrial enterprises and construction organizations.

The problem of including the forces and funds of industry, especially of machine building, power and other sectors, in the fulfillment of the land reclamation program was further developed and specified in the subsequent decisions of the party and the government. For example, in accordance with the decrees of the CPSU Central Committee and the USSR Council of Ministers "On Further Intensification of Work on Land Reclamation and Improvement in the Utilization of Irrigated and Drained Land" (1972) and "On the Land Reclamation Plan for 1976-1980 and Measures To Improve the Utilization of Reclaimed Land" (1976) state assignments for the production and deliveries of machinery and equipment for the irrigation of agricultural crops, floating pumping stations, reclamation machines, steel and aluminum pipes and articles and materials needed for the fulfillment of reclamation work plans were set for a number of industrial ministries, in particular of construction, road and municipal machine building, construction materials and ship and aviation construction during the 9th and 10th Five-Year Plans. Many industrial ministries, including of power and electrification, transport construction, installation and special construction work and construction of heavy industry enterprises, performed large volumes of special construction work for the USSR Ministry of Land Reclamation and Water Resources and took part in the construction of projects connected with the agricultural development of irrigated and drained land, enterprises of the construction industry and construction materials industry, housing and so forth. All these measures contributed decisively to a qualitative transformation of the land stock of kolkhozes and sovkhozes and to an increase in the production of key types of agricultural products.

The May Plenum of the CPSU Central Committee considered it necessary to raise the proportion of state capital investments in the total volume of centralized allocations assigned for the development of agriculture, increasing them considerably for reclamation purposes, and to carry out all work on a fundamental improvement of land primarily at the expense of the state. This decision embodied the course of the March (1965) Plenum of the Central Committee of the Party for an improvement in economic policy with respect to agriculture and for a redistribution of the national income and of the material and technical resources of society in favor of the sectors of the agroindustrial complex. Whereas during the Seventh Five-Year Plan state capital investments in reclamation totaled 5.9 billion rubles, or 21.2 percent of their total volume in agriculture, during the Eighth Five-Year Plan their volume was more than doubled. The volume of state allocations for reclamation during the Ninth Five-Year Plan increased at the same rates. During that period their proportion in all state capital investments in agriculture reached almost one-third. During the two five-year plans after the May Plenum capital investments in land reclamation exceeded the allocations of all the preceding seven five-year plans taken together for these purposes. Capital investments in land reclamation for the entire set of operations in a volume of more than 40 billion rubles, that is, as much as was utilized in 1966-1975, were planned for the 10th Five-Year Plan.[3]

The assignment of large allocations for reclamation and the large-scale state approach to this matter made it possible to raise the rates and quality of hydroreclamation construction, to change over to the construction of technically improved irrigation and drainage systems with advanced methods of irrigation and drainage and to carry out overall work on the establishment of reclamation systems, development of irrigated and drained land and technical retooling of their maintenance services.

The systematic implementation of the long-term land reclamation program led to a significant expansion of the stock of irrigated and drained agricultural land and to an increase in its proportion in the total area of arable land. In the country in 1965 there were 9.9 million hectares of irrigated and 10.6 million hectares of drained land and at the beginning of 1980, a total of 17 million hectares and 16.3 million hectares respectively. A total of 700,000 hectares of irrigated and 650,000 hectares of drained areas were put to use during the concluding year of the 10th Five-Year Plan.[4] Therefore, the stock of reclaimed land in the USSR has now reached 35 million hectares. At the same time, we must take into consideration that during the period under consideration capital investments were assigned not only for new construction, but for the reconstruction of technically obsolete and primitive reclamation systems, especially drainage systems, built a long time ago.

High rates in the development of land reclamation were also characteristic for the Ukrainian SSR. In the last 1½ decades the stock of irrigated land increased there from 503,000 hectares to 2,030,000 hectares, or more then fourfold and of drained land, from 1.37 million hectares to 2.5 million hectares--1.8-fold. During those years approximately 6.6 billion rubles were spent on the construction of waterworks in the republic and 1,669,000 hectares of irrigated land and 1,895,000 hectares of drained land were put to use. Irrigation-reclamation funds increased almost 13-fold (from 363.6 million rubles at the end of 1965 to 4,636.3 million rubles at the beginning of 1981). The republic has become one of the major regions of reclaimed farming in the country. It now accounts for about 12 and 15 percent of the all-Union stock of irrigated and drained agricultural land respectively.

In addition to the wide scale and high rates of hydroreclamation construction, the shift of the center of gravity of irrigation work from the regions of traditional irrigated farming (Central Asia, the Transcaucasus and Kazakhstan) to steppe grain zones (the Volga area, North Caucasus and South Ukraine), which, in turn, determines certain specific features in the development of reclamation, is the characteristic of the present stage in the implementation of the long-term land reclamation program. Whereas, on the average, in the USSR during the 10th Five-Year Plan the area of irrigated land increased by 22 percent and in the Uzbek SSR, only by 15 percent, in the Ukrainian SSR, by one-third. Rates of growth of 20, 13 and 25 percent respectively are envisaged for them for the 11th Five-Year Plan. New regions--the nonchernozem zone of the RSFSR and the Poles'ye Lowland--now also account for the basic volumes of drainage work.

A significant increase in the capital intensiveness of irrigation and drainage systems in connection with their qualitative improvement and rise in the technical level, materials intensiveness and, especially, power intensiveness of reclamation, as well as significant structural shifts in the utilization of reclaimed land, primarily in new regions, are now the most important characteristics of the development of hydraulic engineering types of land reclamation. The economic efficiency of capital investments in land reclamation undoubtedly depends on this.

We can judge the efficiency of reclamation under the conditions of the Ukrainian SSR from the following data: The investigations conducted at the Institute of Economics of the Ukrainian SSR Academy of Sciences show that, on the average, the correlation of irrigated and dry (nonirrigated) farming in the republic during the 9th and 10th five-year plans was as follows: a) according to an averaged relative increase in the yield--1.8:1; b) according to the gross output of farming per hectare of arable land and perennial plantings--2.75:1; c) according to net income per hectare--2.5:1. On the average, the yield on irrigated land on farms in Krymskaya Oblast during the Eighth and Ninth five-year plans was as follows: of grain crops, 44.3 quintals per hectare, including of corn, 44.8 quintals per hectare, of vegetables, 187 quintals per hectare and of corn for silage and green fodder, 320 quintals per hectare, which is 2.4-, 1.5- and 3.2-fold higher respectively than on dry land. In most cases the indicators of the productivity of land and of the efficiency of agricultural production on drained land are also 1.5- to 2-fold higher than on old arable land.

Reclaimed land plays an ever more important role in an increase in the production of farm products and, through the strengthening of the fodder base, of livestock products as well. According to the calculations performed by the Ukrainian Scientific Research Institute of Economics and Organization of Agriculture imeni A. G. Shlikhter, the proportion of the gross output of farming obtained from reclaimed land in its total volume from the public sector of agriculture in the Ukrainian SSR comprised 9 percent during the Eighth Five-Year Plan, 12.3 percent during the Ninth Five-Year Plan and 15.8 percent during the 10th Five-Year Plan, including from irrigated land, 6.9, 9.3 and 11.3 percent respectively. For example, in the

Crimea on irrigated land, which occupies 18 percent of the total area of agricultural land, sovkhozes and kolkhozes stably produce more than one-half of the gross output of farming, including 85 to 90 percent of the vegetables, 80 to 85 percent of the fruits, 50 percent of the fodder and one-third of the grain. On the average, in the republic during the 9th and 10th five-year plans almost 46 percent of the total increase in the gross output of farming obtained in the public sector of agriculture was ensured by reclaimed land, including 31 percent, by irrigated land. During the 10th Five-Year Plan these indicators reached 58.4 and 35.7 percent respectively.

Yield of Major Agricultural Crops Grown on Reclaimed Land and Rates of Its Growth in the Ukrainian SSR (in % of the Preceding Five-Year Plan)*

Crops	On the Average During the Five-Year Plan						
	VII	VIII		IX		X	
	quin. per hec.	quin. per hec.	%	quin. per hec.	%	quin. per hec.	%
Irrigated Land							
Grain crops (on the average)	26	35.6	37	37.9	106	39.6	105
Sugar beets	203	330	163	323	98	341	106
Vegetables (on the average)	124	140	113	153	109	169	110
Potatoes	56	78	139	81	104	83	103
Corn for silage and green fodder	210	255	121	265	104	303	114
Perennial grass hay	34.7	48.4	140	50.5	104	55	110
Drained Land							
Grain crops (on the average)	14.8	18.4	124	23.8	130	25.8	108
Sugar beets	135	277	205	317	114	325	103
Vegetables (on the average)	130	144	111	158	110	164	104
Potatoes	73	86	118	111	130	122	110
Corn for silage and green fodder	126	136	108	190	140	200	105
Perennial grass hay	24.7	27.9	113	32	114	33.1	103

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*Calculated according to statistical accounting data.

As can be seen from the table, in almost all the basic agricultural crops grown on irrigated and drained land a stable tendency toward an increase in their yield is observed. However, the rates of its growth have slowed down considerably. This is due to a variety of factors, among which the unfavorable climatic conditions of the last few years are also of great significance.

The implementation of a long-term land reclamation program and a proportional interconnected development of all its links has also led to the formation of the national economic and territorial irrigation-reclamation complexes as an important component and a subsystem of agroindustrial complexes. Irrigation and drainage of land or both simultaneously is for most of the country's farming regions a necessary factor in intensive, stable and efficient farming and irrigation-reclamation complexes, a mandatory component of the agrarian-industrial complexes of an oblast, zone or republic.

Within territorial irrigation-reclamation complexes, by means of which one of the most complex problems--fundamental improvement and increase in the fertility of land--is solved, large specialized production zones have now been or are being established, new agrarian and agrarian-industrial complexes are emerging and previously formed ones are being transformed. Essentially, they are stable production zones, where the production of the envisaged volumes of agricultural products is guaranteed almost with a 100-percent probability.

Ultimately, the efficiency of funds and labor invested in hydroreclamation construction depends on the efficiency of production on reclaimed land and, in turn, the latter is determined by how proportionally irrigation-reclamation complexes develop, how they function and how rationally and productively water and land resources are utilized. Therefore, during the 8th, 9th and, especially, 10th five-year plans significant funds were allocated for a uniform development of all production facilities, organizations and services connected with planning, with the provision of equipment and materials for reclamation, with the construction of reclamation projects, with their development and with the utilization of irrigated and drained land and their distribution improved. Nevertheless, the problem of improving the structure of capital investments in reclamation continues to remain very urgent.

In connection with this at the present stage much attention was given to problems of an efficient utilization of capital investments assigned for land reclamation and an increase in its yield. It should be stressed that the investment of funds in the irrigation and drainage of agricultural land must be made primarily in the zones, oblasts, rayons and farms where they will give the greatest increase in output and where their rapid recovery can be attained. These problems become especially urgent if they are viewed through the prism of the July (1979) decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

The new stage in the implementation of the land reclamation program in the republic during the 11th Five-Year Plan and during the period until 1990 under the conditions of the transfer of all sectors to an intensive path of development sets serious and responsible tasks for planning, water management and agricultural bodies, reclamation science and all reclamation and water management workers. The characteristics of modern reclamation construction, consisting in the need to carry out large-scale work on the control of the surface runoff and on the transfer of significant volumes of water resources over great distances and to implement nature protection measures and steps for an economical expenditure of water and prevention of soil salinization and swamping, on the one hand, and structural changes in the nature of utilization of irrigated and drained land with a simultaneous increase in the capital intensiveness of a unit of reclaimed area, on the other, require the mobilization of all production resources and potentials for the purpose of increasing the yield from the funds allocated by the state for the construction of waterworks.

The need for the further improvement in the sectorial, technological and social-economic structure of capital investments in reclamation is determined by the characteristics of the present stage in the social and economic development of the country as a whole and of rural areas in particular. In this connection an improvement in the development and utilization of irrigated and drained land is of exceptional importance. The agricultural development of reclaimed territories, putting in the forefront the demand for the quantity and quality of production resources, primarily labor resources, also places higher demands on the production and social infrastructure. Only an optimal integrated development of territorial production systems established on reclaimed land, including the formation on every sovkhoz and kolkhoz of a material and technical base corresponding to intensive farming systems, a rational settlement scheme and the creation of favorable working and living conditions, can ensure a high efficiency of the funds invested in reclamation. Therefore, the proportion of the expenditures on the development of irrigated and drained land and on the construction of housing and projects for cultural and general purposes should continue to be increased in the structure of capital investments in reclamation.

An analysis shows that at present there is a shortage of the machinery and equipment necessary for a successful development and optimum functioning of irrigation-reclamation complexes. According to some data, the allocations for reclamation and water resources exceed the capital expenditures in reclamation machine building 80 times and, on the whole, in the agroindustrial complex the proportion of capital investments on the development of agricultural machine and tractor building makes up less than 3 percent.[5] Apparently, it is advisable to make a certain redistribution of funds in favor of the sectors that provide agriculture in irrigation and drainage zones with basic means of production.

An improvement in the planning of capital investments in reclamation, the placement of irrigated and drained land with due regard for the need to obtain a quick return and a further concentration and specialization of agricultural production on reclaimed areas should play an important role in an increase in the economic efficiency of capital investments in reclamation. In accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers on an improvement in the economic mechanism capital investments for national economic sectors should be allocated for the planned (projected) increase in output. This also applies to the construction of waterworks. The funds for land reclamation should be allocated primarily for the oblasts, rayons and farms that will ensure the greatest return in the form of increases in the farm and livestock products necessary for society. Obviously, during the current five-year plan it is necessary to attain a situation in which the indicators of increases in agricultural products as a result of the irrigation and drainage of land and the attained efficiency of utilization of reclaimed land would serve as the basis for the preparation of plans for capital investments in reclamation.

The present stage in an improvement in the economic mechanism places increased demands on construction, as well as planning water management organizations. Cases of revision of design solutions, increase in the cost of construction and so forth are still frequent, which has a negative effect both on a prompt commissioning of hydroreclamation projects and on the efficiency of their functioning. An improvement in planning estimates, development of plans with due regard for scientific and technological achievements in the area of reclamation, hydraulic engineering and water management and a high level and reliability of the technical and economic substantiation--these are the fundamental problems that the planning organizations of the Ukrainian SSR Ministry of Land Reclamation and Water Resources are now called upon to solve. Their responsibility for the technical level and economic efficiency of planned water management projects should be increased. An analysis of some studies performed by the institutions of the Ukrgiprovodkhoz system shows that in a number of cases there is a superficial approach to an economic substantiation of the construction of reclamation systems, when production indicators on irrigated and drained land known to be unattainable in practice are established for the purpose of ensuring a high recovery of capital investments at the stage of preparation of the technical and economic substantiation or planning.

Planning water management organizations should give priority attention to the following: to a profound substantiation of the types of reclamation systems and irrigation norms, to the introduction of low-water intensive methods and techniques of watering and of advanced forms of organization of the operation of reclamation systems and production on irrigated and drained land, to the sizes of the farms newly established on it, to the specialization of farming and to nature protection measures during the implementation of a specific hydroreclamation project. It should always be remembered that every defect or error in planning and an insufficient study of the effect of future reclamation projects on the natural environment, as stressed at the 14th meeting of the council of directors of the Soyuzvodproyekt All-Union Scientific Production Association, can bring about a "train of losses growing according to the stages of the project's realization."[6]

The tasks of increasing the economic efficiency of reclamation and of shortening the periods of attainment of the planned yield and recovery of capital investments on irrigated and drained land put on the agenda the problem of refining economic and financial levers, of improving the quality of work in reclamation and water management, in particular in the operation of reclamation systems, and of rationally and efficiently utilizing all production resources, including irrigation water, which costs society more and more. Since at present the operation and maintenance of reclamation systems, on which a prompt supply or discharge of water, the reclamation state of land and so forth depend, are now some of the greatest bottlenecks, the solution of this problem both on an organizational and economic plane will lead to an advance of reclamation efficiency.

Problems of rationalization of agricultural water utilization and of the implementation of measures aimed at reducing the expenditures and losses of water in irrigated farming--the biggest water consumer--now acquire great national economic importance. Under the conditions of the rising demand for water, limited water resources and increasing expenditures on water management this is a priority task. The effectiveness of investments of funds and labor in reclamation largely depends on how productively water is utilized in irrigated farming. The more output is produced per unit of consumed irrigation water, all things being equal, the higher its efficiency and the better the fixed capital of water resources is utilized.

The main potential for saving water resources lies in the elimination of filtration losses, in an increase in the efficiency of irrigation systems and in the transition to advanced low-water intensive methods of irrigation and techniques of watering. Investigations show that, on the average, water consumption is 40 percent lower in small-dispersion sprinkling, 30 to 50 percent lower in drop irrigation and 15 to 20 percent lower in synchronous pulse sprinkling, as compared with ordinary sprinkling. For the purpose of saving scarce fresh water, it is necessary to more widely introduce these types of irrigation into practice. At present useless water losses in the republic exceed 700 cubic meters per hectare of irrigated area. According to our calculations, 1 cubic meter of water resources used for land irrigation can ensure an additional production of either 1.5 kg of wheat grain, 6 to 7 kg of sugar beets, 4 to 6 kg of vegetables, 4 to 5 kg of fodder units sufficient for the production of 3.5 liters of milk, or 0.5 kg of beef.

The 26th CPSU Congress set important and responsible tasks for reclamation experts and water management workers. The success of any enterprise depends on personnel, on their responsibility, on the demands placed on them, on their ability to work with people and on labor and production organization. In his speech at the May (1966) Plenum of the Central Committee of the Party L. I. Brezhnev noted the following: "Without great responsibility on the part of personnel and without great demands placed on them it is impossible to successfully solve the important problems facing us. Without such responsibility and demands it is impossible to train and develop cadres of managers, who would be at the level of these problems."[7] A strict planning, technological and labor discipline is a guarantee of a successful fulfillment of the assignments set for workers in water management and agriculture by the 26th CPSU Congress and the 26th Congress of the Communist Party of the Ukraine.

FOOTNOTES

1. Brezhnev, L. I., "Leninskim Kursom" [Following Lenin's Course], Speeches and Articles, Vol I, Moscow, Politizdat, 1970, p 413.

2. Ibid, p 397.

3. "Ekonomicheskiye Problemy Ispol'zovaniya Zemel'nykh i Vodnykh Resursov v Sel'skom Khozyaystve" [Economic Problems of Utilization of Land and Water Resources in Agriculture], A. M. Onishchenko, editor-in-chief, Kiev, Naukova Dumka, 1978, pp 40-41.

4. "Narodnoye Khozyaystvo SSSR v 1965 G." [USSR National Economy in 1965], Moscow, Statistika, 1966, p 365; "Narodnoye Khozyaystvo SSSR v 1979" [USSR National Economy in 1979], Moscow, Statistika, 1980, pp 265 and 269. On the results of fulfillment of the state plan for the economic and social development of the USSR in 1980, PRAVDA UKRAINY 24 January 1981.

5. "Nauka i Aktual'nyye Problemy Razvitiya Narodnogo Khozyaystva. Materialy Sessii Obshchego Sobraniya AN SSSR 13-14 Dekabrya 1979 G." [Science and Urgent Problems in National Economic Development. Data of the Session of the General Meeting of the USSR Academy of Sciences on 13-14 December 1979], Moscow, Nauka, 1980, p 118.

6. GIDROTEKHNIKA I MELIORATSIYA, No 3, 1980, p 2.

7. Brezhnev, L. I., "Leninskim Kursom," Vol I, p 408.

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IMPROVEMENTS IN LAGGING KOLKHOZES NOTED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 5, May 81 p 22

[Follow-up article for original article entitled,"Improving the Economy of Lagging Kolkhozes," appearing in JPRS 77133/1263, dated 8 January 81 pp 13-17]

[Text] "Improving the Economy of Lagging Kolkhozes" was the title of an article by the director of the main administration of kolkhoz organizational affairs of the RSFSR Ministry of Agriculture, V. Yakushev,published in the eleventh issue of the journal in 1980. It discussed the poor utilization of resources that have been allocated for the construction of children's pre-school facilities, schools and clubs in the lagging kolkhozes of Ryazanskaya and Pskovskaya oblasts.

As reported by the director of the production association of the Ryazanskaya Oblast executive committee, A. Petrykin, the article was discussed in a board meeting and the criticism was recognized as justified. It is true that of the 1.5 million rubles earmarked for this purpose only 943,000 rubles were actually spent in 1980--only 63 percent. The director of the capital construction department, F. Gordyushov, was strictly warned about the unsatisfactory utilization of resources. One of the reasons for this situation is that because of an absence of subordinate organizations many kolkhozes construct cultural-consumer facilities domestically which undoubtedly hinders construction.

Measures are being taken to eliminate the aforementioned shortcomings. At the same time certain work is being done to improve the economy of lagging kolkhozes. Their financial-economic activities were thoroughly analyzed by balance committees of agricultural administrations in rayon executive committees. Specific measures were indicated to encourage an improvement in the economic indicators for production activities. Annual results and developed measures were discussed in meetings of brigades, farms and other subdivisions.

The following is a response from the deputy director of the agricultural production administration of the Pskovskaya Oblast executive committee, M. P. Shirenin:

Comrade Yakushev correctly noted the violations in the construction of dwellings, and social and consumer structures in economically-weak enterprises of Pskovskaya Oblast. Having evaluated the situation, during the current five-year plan we plan to significantly increase the volume of such construction, namely to add 320,000 square meters of dwellings, or double the figure for the 10th Five-Year Plan, to increase the number of places in Houses of Culture and clubs by 6,000 as compared with the same period and to expand the network of pre-school facilities.

The oblast kolkhoz council will now be examining questions of construction of structures for social and cultural purposes in lagging kolkhozes and of the assimilation of resources allocated for this purpose from the central union fund of social insurance for kolkhoz workers regularly at their meetings.

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FINANCIAL SITUATION IN ENTERPRISES CRITICIZED, IMPROVEMENTS URGED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 6, Jun 81 pp 18-20

[Article by M. Kazakov, director of the Central Financial Administration of the RSFSR Ministry of Agriculture: "Strengthening the Economic Status of Enterprises"]

[Text] As a result of the tireless concern of the party and government for strengthening the material-technical base of agriculture, this branch of the economy has significantly improved its situation in recent years. An example of this is the last five-year plan during which, working under extremely unfavorable weather conditions, kolkhozes and sovkhozes were able (especially during the 10th Five-Year Plan) to considerably increase production output. Thus, average annual gross production output reached 123.7 billion rubles during the last five-year plan, which is 9 percent higher than during the preceding plan.

At the same time, during recent years some kolkhozes and sovkhozes in the republic have slowed the growth pace of production output, which in the face of growing expenditures for it has been the reason for a decrease in profits and an increase in the number of enterprises operating at a loss as well as losses themselves. Conditions for returning bank credit have worsened, there has been an increase in delayed payments for loans and of non-payments to suppliers. In other words, the financial condition of many enterprises has deteriorated noticeably.

In order to improve their financial situation the state has taken a series of measures. In particular, some debts for loans from Gosbank have been written off and others have been extended for long periods of time. Sovkhozes are now required to have insurance against natural calamities and other unfavorable production conditions. Despite this, the financial condition of a number of kolkhozes remains tense. If we also consider that during the current five-year plan enterprises must repay a total of 12.5 billion rubles of bank credit, it becomes clear that the directors of enterprises and agricultural organs must take immediate additional action to increase the earning capacity of production and to introduce all existing reserves.

Some directors of kolkhozes and sovkhozes explain the worsening of the financial and economic situation of their enterprises simply as the result of increased costs of construction, services and material. This did play a role, but during the same period procurement prices for various types of agricultural products increased, enabling farms to compensate for the added expenditures to a considerable degree.

We cannot accept this explanation alone because in all of Russia there are enterprises which were able to eliminate the effect of all unfavorable factors and to maintain a high profit level. This was achieved by effectively using material and financial resources and by securing a fast growth pace for production output. The Sadovod Sovkhoz of Krasnodarskiy Kray is an example of an economic attitude toward the problem. Despite the increasing costs, its collective not only was able to maintain a high profit level, it also achieved an increase in savings of 1 million rubles each year (during the five-year plan). The yield of fruit per hectare of orchards increased by 20 percent and the output-capital ratio has practically not decreased.

The secret of success in the enterprise lies in the steadfast growth of production output by increasing the area in and productivity of crops, in the extensive introduction into production of scientific achievements and modern mechanization means and in a sharp curtailment of losses. In the enterprise there is a plant that processes non-standard products. Residential and cultural-consumer construction is proceeding at a rapid pace. Public nutrition has been organized in a model fashion.

Unfortunately, such a management method and such an approach to the use of capital investments of material and labor resources are not utilized in all kolkhozes and sovkhozes by far. For example, management is poor in many enterprises of Ivanovskaya Oblast. During the last decade the productivity of cows here has decreased by 700 kilograms. As a result of this alone kolkhoz and sovkhoz losses increased by 2.5 million rubles per year.

This kind of situation does not meet modern needs and it is essential to take immediate action to increase the technical-economic indicators of production.

This must be done everywhere. The capital investments of kolkhozes and sovkhozes in the republic comprise 14.4 billion rubles this year. The scale and pace of growth of production output, the profitability of production and the payment capability of enterprises depend on how efficiently they will be utilized.

The achievement of high final results will also be encouraged by the introduction of a 50-percent addition to procurement prices for basic products. It will be paid for exceeding the average annual level of procurement reached during the past five-year plan. Through this alone kolkhozes and sovkhozes will have the opportunity to receive no fewer than 2 billion rubles of additional income this year.

An analysis of the operations of enterprises indicates that low profits and financial difficulties in many of them are frequently the result of violations of cost-accounting principles in mutual ties with service organizations and enterprises and of diverting resources for goals that are not related to the development of agricultural production.

Many enterprises carry losses due to the miscalculations of procurement organizations for products received and of organizations of RSFSR Goskomsel'khoztekhnika [State Committee for Supply of Equipment to Agriculture] for machines and equipment that are released and for work that is performed to repair and service technology. There is a significant underproduction of produce because of the untimely operational start of production structures by subordinate organizations and untimely introduction of reclaimed and drained lands.

Here it should be noted that the violations of the established order for utilizing resources are frequently the fault of kolkhozes and sovkhozes. The directors of enterprises and production subdivisions sometimes do not check the correctness of documentation and sign documents recording exaggerated service volumes or poor-quality or unfulfilled work. In most cases this is done consciously out of fear of spoiling relations with "needed people."

The interrelationship of kolkhozes and their neighbors and particularly the organizations of Roskolkhozstroyob"yedineniye [All-Russian kolkhoz construction association] must still be finalized. As we know, capital investments (together with long-term credit) are centrally issued to this association by the RSFSR Ministry of Agriculture. Moreover, kolkhozes may transfer resources for the development of a base for inter-kolkhoz construction organizations at a rate of up to 3 percent (depending on the financial condition of the enterprise) of the cost of construction-installation work. However, there are cases of violations. For example, in Checheno-Ingushskaya ASSR in estimates for structures constructed in 1978-1980 these expenditures were foreseen at a rate of 10 percent of the estimated cost of construction-installation work. Moreover, additional sums were calculated and collected from enterprises regardless of their financial situation. Such violations were also tolerated in many kolkhozes of Ryazanskaya Oblast.

There were also cases in which the losses and expenditures of inter-farm enterprises, including the organizations of Roskolkhozstroyob"yedineniye, were covered by kolkhozes and sovkhozes not from their own funds but through loans from Gosbank.

These practices are intolerable. If kolkhozes and sovkhozes do not have resources for eliminating the losses of inter-farm enterprises, for making up for a shortage of their own working capital or for liquidating Gosbank credit due to insufficient means, the problem of postponing payments must be decided in the order that has been established by these enterprises. For short-term loans, upon being petitioned by the oblast executive committee, the management of Gosbank SSR can postpone payments for 1 year; for long-term loans--3 years.

Frequently enterprises tolerate the diversion of resources while transferring capital investments to other organizations in the form of shares. For this reason agricultural organs must receive from kolkhozes a detailed enumeration of planned sums for shares for each organization. This must be done when production-financial plans are being submitted. In addition, starting in 1981 in the RSFSR the buying of shares in unrelated enterprises using capital investments from kolkhozes will be tolerated by bank divisions only after an examination of the records of transfers by higher agricultural organs and Gosbank offices.

The complex financial situation in some kolkhozes and sovkhozes, as the analysis indicates, is frequently the result of mismanagement in calculations and of the violation of the established order for performing them. In the Novaya Zhizn' Kolkhoz of Checheno-Ingushskaya ASSR in 1979 there were 141,000 rubles of debts to the state breeding association for horses sold and in 1978--59,000 rubles of debts to the republic's bee office. Comparisons of calculations made by enterprises and organizations in this kolkhoz in the course of the last 2 years were not made; for several years accountable individuals were not rebuked for the sums obtained. On the whole in 1979 the economy of this kolkhoz looked thus: income from the sale of products--252,000 rubles; total debts for loans--373,000 rubles.

Significant amounts of monetary resources do not arrive on schedule in kolkhozes and sovkhozes as a result of the fact that procurement organizations detain documents that must go to the bank and that there is an absence of controls on the part of enterprises over scheduled payments for products. Here is an example of what can happen. In Primorskiy Kray for the aforementioned reasons seven sovkhozes were owed 63,000 rubles by buyers as of 1 July 1980.

The success of enterprises also greatly depends on the precise organization of financial planning at all levels of management. To do this it is very important to secure objective accounts and to correctly calculate the remainder of seeds, feed, and calves transferred to the following year in all cost plans. There should be an economic basis for distributions on the basis of balanced accounts of financial resources allocated by the state--appropriations from the budget and long-term credit. In Krasnodarskiy Kray, Mariyskaya ASSR and other oblasts this is still scorned. Long-term credit is distributed to kolkhozes simply on the basis of requests. For this reason some enterprises have excess resources; others find themselves with a shortage.

For a number of reasons at the beginning of this year the republic's kolkhozes found that there was an overexpenditure of about 1 billion rubles of working capital for capital investments. In order to balance the plan the ministry, in agreement with Gosbank, plans to restore only a portion of this overexpenditure in production-financial plans. Nevertheless, in a number of krays, oblasts and autonomous republics complete restoration is planned as before, resulting in plan stress. In striving to balance expenditures for capital expenditures with the sources of the resources, some kolkhozes (especially those in Rostovskaya Oblast) are planning an unrealistic decrease in transfers of left-over materials that are necessary for construction in future years. As a rule the unrealistic nature of such plans is revealed at the end of the year and the overconsumption of resources increases instead of decreasing.

In connection with the introduction in kolkhozes of new conditions for short-term credit, it has been determined that the difficult financial situation of some enterprises was the result of an incorrect investigation of securing short-term credit. In Mariyskaya ASSR in violation of rules the sources for covering working capital included all postponed loans (including that portion which covered the negative availability of their own working capital). This was the main reason why as of 1 January of the current year in kolkhozes the overdue payments on loans equalled a total of 18 million rubles.

The newly-introduced examination of credit securement in kolkhozes is an effective means of bank control over their financial condition. For this reason the workers of enterprises and agricultural organs must know the order of the examination and together with the enterprises of Gosbank they must study its results (especially for the beginning of the year) and take the necessary measures to eliminate the indicated shortcomings.

With the goal of strengthening the economic and financial status of kolkhozes and sovkhozes the RSFSR Ministry of Agriculture, the RSFSR Ministry of Finances and the Russian republic office of Gosbank have developed and sent out the instructions, "On Improving Controls over the Financial and Economic Activities of Kolkhozes and Sovkhozes." In accordance with these instructions local organs must more actively encourage the growth on income in enterprises, a careful expenditure of resources and also strengthen barriers to diverting resources from the branch. In particular, in order to avoid cases in which kolkhozes and sovkhozes sell technology in short supply (buses, cars, trucks, tractors) to enterprises and organizations of other branches in the national economy, it has been proposed that Gosbank institutions reimburse payments of these enterprises only upon agreement of agricultural organs.

In addition to this, the latter must check individual sovkhozes which systematically tolerate violations and an overexpenditure of resources for wages and bonuses and lists of wages and bonuses and to bring its conclusions to the institutions of USSR Gosbank concerning the allocation of available money for these purposes. It has also been proposed that agricultural organs, in agreement with Gosbank, make preliminary investigations of the payment assignments of enterprises regarding the transfer to other organizations of monetary funds for shareholding, the payment of membership dues to societies and other purposes. The institutions of USSR Gosbank have the obligation to strengthen preliminary controls over the payments of accounting documents and to demand from kolkhozes, sovkhozes, enterprises and organizations serving agriculture, if necessary, all documents and materials that will confirm the foundation for the operations that are being performed.

At the present time controls over the operations of enterprises are not always effective because of the separation of and lack of coordination among the operations of agricultural, bank and financial organs. In order to correct the situation, agricultural, banking and financial organs should develop joint plans each year for controlling operations, conduct joint investigations, examinations and analyses of the financial and economic activities of kolkhozes and sovkhozes, and strive to improve economic operations in enterprises and to avoid the aimless consumption of resources. The realization of these measures will further the strengthening of the economies of kolkhozes and sovkhozes.

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AGRO-ECONOMICS AND ORGANIZATION

TEMPORARY INDICATORS OF CROP, DAIRY YIELD WITH WAGE FUND INCREA

Moscow EKONOMICHESKAYA GAZETA in Russian No 24, Jun 81 p 16

[Temporary indicators of the yield of agricultural crops and of the productivity of livestock and poultry, upon the attainment of which the wage fund of workers engaged in plant growing and animal husbandry for the determination of rates for output (for a given crop or type of product) can be increased to 150 percent with the job-contract-plus-bonus wage system and to 50 percent with the piece-rate-plus-bonus wage system and the conditions for an increase in this fund for 1981-1983 approved by the USSR Ministry of Agriculture, the USSR Ministry of Food Industry and the USSR Ministry of Fruit and Vegetable Industry in coordination with the USSR Ministry of Finance, the USSR State Committee for Labor and Social Problems and the AUCCTU on 13 May 1981]

[Text] The decree No 1032 dated 14 November 1980 of the CPSU Central Committee and the USSR Council of Ministers "On Improving the Planning of and Economic Incentives for the Production and Procurements of Agricultural Products" granted sovkhozes and other state agricultural enterprises the right, with the permission of a superior organization and in coordination with the appropriate trade-union committee, to increase, for workers engaged in plant growing and animal husbandry, who attained high indicators of the yield of agricultural crops and of the productivity of livestock and poultry, the wage fund for the determination of rates for output (for a given crop or type of product) to 150 percent with the job-contract-plus-bonus wage system and to 50 percent with the piece-rate-plus-bonus wage system.

The USSR Ministry of Agriculture and the USSR Ministry of Food Industry in coordination with the USSR State Committe for Labor and Social Problems, the USSR Ministry of Finance and the AUCCTU in accordance with the indicated decree of the CPSU Central Committee and the USSR Council of Ministers establish the following temporary indicators of the yield of agricultural crops and of the productivity of livestock and poultry, upon the attainment of which the wage fund of workers engaged in plant growing and animal husbandry for the determination of rates for output is increased and the rates of increase in this fund (supplements Nos 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11).

1. The scales of indicators of the yield and productivity of livestock and poultry and the rates of increase in the wage fund for types of agricultural crops and animal products not presented in the indicated supplements are established by

oblast (kray) executive committees, councils of ministers of autonomous republics and, in the Union republics that do not have an oblast division, by councils of ministers of the Union republics.

When these scales are worked out, the data attained on a specific crop or type of animal product, on the average, throughout farms in an oblast, kray and republic not having an oblast division (and in the necessary cases in a zone) during the 10th Five-Year Plan are taken as the base yield level.

In cases when in some oblasts, krays and republics, owing to unfavorable weather conditions during the 10th Five-Year Plan, extremely low indicators of productivity (yield) for a given oblast, kray and republic were obtained, the corresponding indicators of the plan of the current 5-year period are taken for these types of products as the base level.

The rates of excess of the average level of yield and productivity and of an increase in the wage fund of workers are established with the following intervals:

When the average level of yield and productivity (for a given crop and type of product) in an oblast, kray, republic and zone is exceeded (in percent)	Rates of Increase in the Wage Fund	
	with the job-contract-plus-bonus wage system	with the piece-rate-plus-bonus wage system
From 30 to 40	130	30
From 41 to 50	140	40
Over 50	150	50

2. The average yield and productivity actually formed for a given crop and type of animal product on farms in an oblast, kray and republic (and in the necessary cases in a zone) for the determination of the rates of increase in the wage fund of workers who attained the production indicators mentioned in the scales are determined and assigned to farms by oblast and kray administrations of agriculture and, in republics not having an oblast division, by the ministries of agriculture of these republics. The calculation of the average yield of agricultural crops and of the productivity of livestock and poultry is made for these purposes for the 5 years preceding a given year. For grain crops the calculation of the average yield includes only the crops for which the statutes in effect do not provide for wages on the basis of 150 percent of the wage fund.

3. The rates of increase in the wage fund of workers are determined in each specific case on the basis of the values, indicated in the scales, of the average yield of agricultural crops and of the productivity of livestock and poultry attained in a given oblast, kray and republic and of the indicators of excess of these values corresponding to them.

Example. In the Novoannenskiy Sovkhoz-Tekhnikum in the Moldavian SSR in 1980 the yield of sunflowers totaled 24 quintals. The average yield of this crop on all farms in the Moldavian SSR during the 5-year period preceding that year was 17 quintals.

According to the attached scale 150 percent of the wage fund correspond to these yield values. Thus, the wage fund of workers in brigades and links engaged in the cultivation of sunflowers, who attained such a yield, when rates for output in 1981 are calculated, should be increased to 150 percent (instead of 125 percent).

4. Rates for output for workers in plant growing and animal husbandry, who attained high production indicators, are calculated on the basis of the corresponding levels of the yield and productivity of livestock and poultry (for a given crop or type of product) indicated in the attached scales of indicator of the yield of agricultural crops and of the productivity of livestock and poultry and of the rates of increase in the wage fund of workers engaged in the production of this output, scales established by oblast (kray) executive committees, councils of ministers of autonomous republics and, in the Union republics that do not have an oblast division, by councils of ministers of the Union republics.

In the example cited above rates for output for brigades and links engaged in the cultivation of sunflowers, which attained the mentioned yield (24 quintals), should be calculated for 1981 on the basis of this yield.

On increase in the wage fund for the calculation of rates for cotton the indicators of the yield throughout an oblast, kray, republic, zone and individual farms are taken for fine- and medium-fiber varieties; for the yield of fine, semifine, coarse and semicoarse wool.

An increase in the wage fund for the calculation of rates for the attainment of high indicators in plant growing and animal husbandry in accordance with temporary indicators is established within the wage fund approved for a farm for the corresponding year.

Supplement 1. Scale of Indicators of the Yield of Grain Crops and Rates of Increase in the Wage Fund of Workers Engaged in the Cultivation of These Crops

Average yield in oblast, kray, republic and zone (quintals per hectare)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)
Up to 12	16-19	19-23	23 and above
From 12 to 15	19-22	22-26	26 and above
From 15 to 18	22-25	25-28	28 and above
From 18 to 20	25-28	28-31	31 and above
From 20 to 22	28-30	30-33	33 and above
From 22 to 25	30-32	32-36	36 and above
From 25 to 28	32-34	34-38	38 and above
From 28 to 30	34-37	37-41	41 and above
From 30 to 32	37-40	40-44	44 and above
From 32 to 35	40-44	44-46	46 and above
From 35 to 40	44-46	46-49	49 and above

Supplement 2. Scale of Indicators of the Yield of Potatoes and Rates of Increase in the Wage Fund of Workers Engaged in Their Cultivation

Average yield in oblast, kray, republic and zone (quintals per hectare)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)
Up to 100	120-140	140-180	180 and above
From 100 to 125	140-165	165-205	205 and above
125-150	170-190	190-230	230 and above
150-175	195-215	215-255	255 and above
175-200	220-240	240-280	280 and above

Supplement 3. Scale of Indicators of the Yield of Sugar Beets and Rates of Increase in the Wage Fund of Workers Engaged in Their Cultivation

Average yield in oblast, kray, republic and zone (quintals per hectare)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)
Up to 150	180-210	210-270	270 and above
From 150 to 175	210-240	240-300	300 and above
175-200	240-270	270-325	325 and above
200-225	270-300	300-350	350 and above
225-250	300-325	325-375	375 and above
250-275	325-350	350-400	400 and above
275-300	350-375	375-425	425 and above
300-325	375-400	400-450	450 and above
325-350	400-425	425-475	475 and above
350-375	425-450	450-500	500 and above
375-400	450-475	475-525	525 and above
400 and above	475-500	500-550	550 and above

Supplement 4. Scale of Indicators of the Yield of Cotton and Rates of Increase in the Wage Fund of Workers Engaged in Its Cultivation

Average yield in oblast, kray, republic and zone (quintals per hectare)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)
Up to 20	22-26	26-30	30 and above
From 20 to 22	24-28	28-32	32 and above
From 22 to 24	26-30	30-34	34 and above
From 24 to 26	28-32	32-36	36 and above
From 26 to 28	30-34	34-38	38 and above
From 28 to 30	32-36	36-40	40 and above
From 30 to 32	34-38	38-42	42 and above
From 32 to 34	36-40	40-44	44 and above

Supplement 5. Scale of Indicators of the Yield of Sunflowers and Rates of Increase in the Wage Fund of Workers Engaged in Their Cultivation

Average yield in oblast, kray, republic and zone (quintals per hectare)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)	with yield on farms (quintals per hectare)
Up to 10	12-14	14-16	16 and above
From 10 to 12	14-16	16-18	18 and above
From 12 to 14	16-18	18-20	20 and above
From 14 to 16	18-20	20-22	22 and above
From 16 to 18	20-22	22-24	24 and above
From 18 to 20	22-24	24-26	26 and above

Supplement 6. Scale of Indicators of the Productivity of the Dairy Herd and Rates of Increase in the Wage Fund of Workers Engaged in the Servicing of the Milch Herd

Average milk yield in oblast, kray, republic and zone (kg in a year)	Rates of Increase in the Wage Fund (in Percent)		
	130	140	150
	with milk yield on farms (kg)	with milk yield on farms (kg)	with milk yield on farms (kg)
Up to 2000	2700	3000	3500
From 2001-2500	3000	3300	3700
From 2501-3000	3300	3600	3900
From 3001-3500 and above	3700	4000	4300

Supplement 7. Scale of Indicators of Wool Yield and Rates of Increase in the Wage Fund of Workers Engaged in the Servicing of Sheep

Average wool yield in oblast, kray, republic and zone (kg)	Rate of Increase in the Wage Fund (in Percent)		
	130	140	150
	with wool yield on farms (kg)	with wool yield on farms (kg)	with wool yield on farms (kg)
Up to 2	2.4-2.8	2.8-3.6	3.6 and above
From 2 to 2.5	2.9-3.8	3.8-4.1	4.1 and above
From 2.5 to 3.0	3.4-3.8	3.8-4.6	4.6 and above
From 3.0 to 3.5	3.9-4.3	4.3-5.1	5.1 and above
From 3.5 to 4.0	4.4-4.8	4.8-5.6	5.6 and above

Supplement 8. Scale of Indicators of the Egg Production of Hens and Rates of Increase in the Wage Fund of Workers Engaged in Their Servicing

Name of Republics	Rate of Increase in the Wage Fund (in Percent)		
	130	140	150
	with egg production on farms	with egg production on farms	with egg production on farms
1. Georgian SSR Azerbaijan SSR Armenian SSR Turkmen SSR Uzbek SSR Tajik SSR Kirgiz SSR	200-210	210-220	over 220
2. Remaining republics	230-240	240-250	over 250

Supplement 9. Scale of Indicators of Average Daily Increases in the Weight of Cattle and of Rates of Increase in the Wage Fund of Workers Engaged in Their Fattening

Average daily weight increases in oblast, kray, republic and zone (gr.)	Rate of Increase in the Wage Fund (in Percent)		
	130	140	150
	with weight increases on farms (gr.)	with weight increases on farms (gr.)	with weight increases on farms (gr.)
400-450	650	700	765
450-500	675	720	775
500-550	700	745	785
550-600	725	770	795
600-650	750	785	805
650-700	775	800	815
700-750	800	815	825
750-800	815	830	840
800 and above	820	840	850

Supplement 10. Scale of Indicators of Average Daily Increases in the Weight of Hogs and Rates of Increase in the Wage Fund of Workers Engaged in Their Fattening

Average daily weight increases in oblast, kray, republic and zone (gr.)	Rate of Increase in the Wage Fund (in Percent)		
	130	140	150
	with weight increases on farms (gr.)	with weight increases on farms (gr.)	with weight increases on farms (gr.)
300-350	470	500	520
351-400	495	515	530
401-450	510	530	540
451-500	525	545	550
501-550	560	570	580
551 and above	565	575	585

Supplement 11. Scale of Indicators of Average Daily Increases in the Weight of Broilers and Rates of Increase in the Wage Fund of Workers Engaged in Their Breeding

	Rate of Increase in the Wage Fund (in Percent)		
	130	140	150
	with weight increases on farms (gr.)	with weight increases on farms (gr.)	with weight increases on farms (gr.)
Average daily weight increases in oblast, kray and republic (gr.)	from 20 to 23	from 23 to 27	over 27

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AGRO-ECONOMICS AND ORGANIZATION

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SYSTEM OF GRAIN ACCOUNTING ACCORDING TO BASIC MASS DEVELOPED

Moscow MUKOMOL'NO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST' in Russian No 5, May 81 pp 20-21

[Article by I. Mambish, candidate of technical sciences; Z. Chukhar'ko, candidate of economic sciences at the All-Union Scientific Research Institute of Grain and Grain Products and N. Tsimbalyuk, chief of the Administration of Accounting, Reporting and Control of the USSR Ministry of Procurements: "Accounting for Grain According To Basic Mass"]

[Text] On the basis of studies carried out over a period of a number of years, VNIIZ [All-Union Scientific Research Institute of Grain and Grain Products], jointly with the Administration of Accounting, Reporting and Control of the USSR Ministry of Procurements, developed an accounting system for grain based upon standard-basic mass. In accordance with the results of an extensive discussion, a production check and experimental introduction, a number of important items were prepared: normative-technical documentation, methods and algorithms for computations, accounting forms, reporting forms and programs for automatic computations using electronic machines. These documents were combined in methodological instructions which were approved by the USSR Ministry of Procurements for experimental introduction.

The accounting unit in the new system is 1 ton of grain of standard-basic mass. The standard-basic mass (basic weight) is the mass of a batch of grain that has been corrected for the common standard-basic norms for moisture and weed content for the entire territory of the USSR. This means that the mass (weight) of each batch of grain accepted and unloaded (released), the moisture and weed content of which is higher or lower than the basic figures, is recomputed for its standard-basic mass. In carrying out this computation, use is made of conversion coefficients which take into account the technical level of the equipment, the evaporation of moisture, the withdrawal of weeds, dust, hulling of grain and the inevitable transformation of the grain of the principal crop into waste products during processing and storage. The computed yield of feed and non-feed waste products is also determined. The standard-basic norms (conditions) for moisture and weed content in the grain are established in accordance with the level of requirements for its preservation and processing technology.

The accounting is carried out using unified forms: lists of receipt and expenditure documents for Form No. 5-avt and reports on grain movements, product movements, the results of post-harvest processing and also on storage operations (Form No. 37-avt).

Form No. 37-avt is the principal document used for reflecting the availability and movements of grain and products at the enterprises. It furnishes figures on the physical and basic mass. The data provided on this form also makes it possible to make a judgement concerning the completed and impending volumes of cleaning and drying work for a day's time and to obtain initial data for operational reporting on the quality of the grain accepted and unloaded for each given number.

For an objective evaluation of the results of the post-harvest processing and storage of grain, taking into account the metrological characteristics, the methods employed and the means used for determining mass and quality, maximum values were established for the permissible deviations.

Grain accounting according to basic mass is carried out using electronic calculators or electronic computers. The computational programs and the filling in of the forms call for automatic control over the delivery of the initial data on mass and quality and also the computations of the basic mass of the grain according to receipts and expenditures.

In 1978 and 1979, the grain accounting system according to basic mass was introduced at seven enterprises in four union republics. Based upon the standard-basic mass, accounting was conducted on 35 batches of grain (16 batches of wheat, 5 batches of rye, 6 batches of barley, 3 batches of oats, 2 batches of millet, 2 batches of peas and 1 batch of buckwheat) representing an overall mass of 669,400 tons. A grain inventory was conducted in the autumn of 1979. All of the batches were cleaned with justifiable changes in mass, the result of improved quality (reduction in moisture and weed content). The results of the cleaning were examined by the GKhI [State Grain Inspection] and approved by the oblast (kray) state inspections for the procurements and quality of agricultural products.

The materials of the experimental introduction were also examined during production conferences of enterprises and oblast (kray) grain products administrations and also by the republic ministries of procurements for the RSFSR, the Ukrainian SSR, the Moldavian SSR and the Lithuanian SSR.

The specialists of enterprises -- Kirovsk-Omsk, Kochenovo and Pomoshnaya elevators, the Armavir, Vilnius and Poltava grain products combines and the Drokiyevskiy Grain Receiving Enterprise, the oblast (kray) grain products administrations (Novosibirskaya, Omskaya, Poltavskaya, Krasnodarskiy and Kirovogradskaya) and the ministries of procurements for the mentioned republics, furnished a positive evaluation for the new grain accounting system.

One of the principal considerations with regard to the new grain accounting system is the fact that it is based upon scientifically sound norms and ensures more strict control over the preservation of the state grain resources. An individual bearing material responsibility at a grain receiving, milling, groat or mixed feed enterprise receives grain that has been computed in a mass of basic conditions and a report must be issued on the basic conditions of the grain. An accounting system according to basic mass is oriented more strictly towards ensuring preservation of the grain; it stimulates the timely post-harvest processing of the grain and the carrying out of measures aimed at reducing the deterioration of full-value grain into waste products during cleaning and when removing such grain from the waste products. In addition, it eliminates the difficult to control writing off of dust, it permits the mechanization and automation of accounting using modern electronic calculators and it draws the grain accounting methods at the grain receiving and grain processing enterprises closer together.

Experience has shown that one of the most labor-consuming processes in computing the basic indicators is that of selecting the conversion coefficients from the tables. The use of such computers as the EFM-446, Askota-170 and Zoemetron-382 also does not solve the problem.

The complete automation of computations can be achieved through the use of electronic calculators. These machines are used for carrying out all arithmetical functions, storage operations, logical operations and they possess sufficient operational memory. These requirements are met by the electronic factor-calculating machines of the Iskra type, which must become the basic machine for the interconnected communication information stations. Use is already being made of the Iskra-2302 and 534 EBM [elektronnaya bukhgalterskaya mashina; electronic calculator] at a number of enterprises of the USSR Ministry of Procurements. A program has been developed for accounting for grain according to basic mass using the Iskra-534 and Iskra-2302 EBM's and the structure of Form No. 5 avt and Form No. 37 avt has been defined more precisely. These programs are making it possible to automate the computations for controlling the delivery of the initial data on mass, moisture content and weed content on Form No. 5 avt and the computations for the basic mass of the grain and waste products on Form No. 5 avt and Form No. 37 avt.

In 1981 and 1982, the plans call for grain accounting according to basic mass to be introduced at nine more enterprises -- three enterprises of the Ministry of Procurements for the Kazakh SSR and one enterprise each for the ministries of procurements for the Belorussian SSR, Latvian SSR, Estonian SSR, Georgian SSR, Uzbek SSR and the Azerbaijan SSR. At these enterprises, prior to the commencement of acceptance of grain from the 1981 harvest, an inventory of the stored grain will be conducted and the remaining grain will be recomputed and credited, together with the physical mass (weight), to the basic mass.

Special importance is attached to the sociological aspect of the grain accounting system according to basic mass. It lies in the fact that, as a result of its use, there will no longer be incidents of workers at elevators and grain receiving enterprises being held responsible unjustifiably for differences in grain mass upon receipt and disbursement, differences which occur as a result of instrumental errors when determining the mass and quality of the grain.

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AGRO-ECONOMICS AND ORGANIZATION

MEASURES TO COMBAT MINERAL FERTILIZER LOSSES REQUIRED

Moscow SOVETSKAYA ROSSIYA in Russian 30 May 81 pp 1-2

[Article by V. Avdevich and N. Demidov, Leningrad and Pskovskaya Oblasts: "The Land Is In No Hurry"]

> [Text] By the end of the five-year plan, the chemists will have supplied agriculture with no less than 115 million tons of mineral fertilizer (in conventional mineral fertilizers), or 41 percent more than the level for 1980. At the same time, the state is investing tremendous resources in strengthening the agrochemical services. "Proper thought should be given" stated Comrade L.I. Brezhnev during a speech delivered in Tbilisi, "to ensuring that each ruble of capital investment and each additional ton of fertilizer pays for itself fully in the form of increased output by the fields, orchards and farms." The initial material of this new column entitled "Zealous Management" is dedicated to this problem.

The working day had not yet commenced and still the mood of the brigade leader of the Transportation Department at the Kingisepp Fosforit Production Association, Vladimir Mikhaylovich Bol'shakov, had already disintegrated. Prior to his shift, he visited the finished products warehouse where, once again, he learned from the dispatcher that no loading work would be carried out today. The reason was the same as that for yesterday and the day before. The freight cars! Of four that were waiting on the spur track to be loaded with mineral fertilizer, not one was in suitable condition. Damaged doors, floors with holes in many areas, cracks in the side walls of the cars and the residue of previous freight.

"Indeed, it is a shame" sadly lamented V. Bol'shakov, "during the past 5 years, we increased our production volume of scarce phosphorus fertilizers by a factor of more than 2.5. But it is impossible to ship the finished goods."

We learned that of each 90 freight cars delivered daily by the Oktyabr'skaya Railroad to the Kingisepp Fosforit Association, more than one half were unsuitable for use. An extreme need exists for transport equipment -- if such equipment is not provided, the sales plan will not be fulfilled -- many enterprises, the Kingisepp Association included, will be forced into accepting broken down freight cars and repairing them using their own resources.

From all appearances, it would seem that the transport workers have forgotten about Point 46 of their Regulations, where it is clearly stated: "The railroad is obligated to provide freight cars which are in good operating condition, have been cleansed of the residues of previous freight and, in certain instances, have been washed and disinfected." Do they bear any responsibility for this? None whatsoever! The Deputy Director of the Kingisepp Fosforit Association A. Ulitin stated that of the 8,814 freight cars delivered since the beginning of the year, the enterprise had to restore 4,570 using its own resources. The expenses totalled almost 100,000 rubles. Furthermore, the Leningrad-Vitebsk Branch of the Oktyabr'skaya Railroad refused to provide compensation for the expenses borne.

Specialists attached to the USSR Ministry of Agriculture have estimated that the annual losses in mineral fertilizers, delivered in unsuitable freight cars, exceed 626,000 tons (in conventional mineral fertilizers) for the country as a whole.

Following the completion of a long or short trip by rail, the vitamins of fertility end up at a rayon base of Sel'khozkhimiya, where they must be stored until distribution among the kolkhozes and sovkhozes. Thus, the freight cars have arrived. How are the products to be unloaded? In the "Recommendations" of the USSR Ministry of Agriculture, it is written: "Do not allow fertilizers to be unloaded at exposed sites (with the exception of that which is packaged in polyethylene bags and containers)." But how is the work proceeding in actual practice? At Krasnoye Selo Station (Leningrad Oblast), we saw a small site which extended along the railroad track and which was almost entirely covered over with potassium chloride.

"There are more than 250 tons here" stated the chief of the station V. Vakhrameyeva, having divined our question in advance, "It has been lying there since 16 May. For whom is the fertilizer? It is for the Lomonosovskiy Rayon Sel'khozkhimiya Association. The client is reliable and pays for the "storage" on a punctual basis."

We caught the irony in the words of Valentina Vladimirovna: as a result of having been "stored" under rainfall, dozens of tons of the unloaded product were already covered with a hard crust. It was not suitable for the fields. A similar situation prevailed at Strugi-Krasnyye Station (Pskovskaya Oblast). There was only one difference -- here there were 120 tons of mineral fertilizer under the open sky, all of it addressed to the Strugo-Krasn[illegible]kiy Rayon Sel'khozkhimiya Association. Roughly one third of the granules lying here were not longer suitable for use. Along the country's railroads, there are today approximately 600 points where the vitamins of fertility are being unloaded directly onto the ground.

According to computations, the annual losses in mineral fertilizers within the Soyuzsel'khozkhimiya System amount to more than 1.9 million tons (in conventional mineral fertilizer).

Unfortunately, proper respect is not being displayed for these products by those who should be most interested in ensuring that they are fully protected -- the kolkhozes and sovkhozes. For example, it is known that the trucks allocated for transporting the fertilizers must be equipped with all metal bodies and the holes in their sides filled in with either burlap or rubber packing. However, the vehicles which came to the Kingisepp Plant from the neighboring Pribrezhnyy and Kingiseppskiy

Sovkhozes were not so equipped. True, one of the drivers, A. Filippov, attempted to cover the ammophos that had been poured into the body of his truck using scraps of tarpaulin. Only he never succeeded in securing it to the sides; the scraps were carried off by the wind while enroute.

"Certainly, a sprinkling of rain and the freight spoils" agreed the driver, "but to a lesser degree than at the sovkhoz, where the fertilizer lies outdoors for weeks at a time. Moreover, it did not appear to me that anybody was disturbed over this fact."

We visited the Pribrezhnyy Sovkhoz. There, at the edge of a field, we observed more than 60 tons of caked fertilizer lying out in the open just as described by the driver; it was not under a shed, nor was it covered by plastic or a tarpaulin.

What thoughts run through your mind upon encountering such mismanagement? A deep sense of shame with regard to the work performed by the collective at the Kingisepp Fosforit Plant, which annually devotes a tremendous amount of effort towards producing greater quantities of high quality products. For example, the nutrient content in the fertilizers being produced at the plant increased during the five-year plan from 36 to [illegible] percent. But are they the only ones responsible for ensuring high quality in the public property? There is still one other factor. The national economy pays more than 130 rubles to the Kingisepp Plant for each ton of ammophos. It turns out that almost 8,000 rubles worth of fertilizer is carried away by the wind owing to the fault of just one sovkhoz -- the Pribrezhnyy Sovkhoz. We encountered an even greater degree of mismanagement at the Za Kommunizm Kolkhoz in Pskovskaya Oblast. Under a shed marked by many holes, granulated superphosphate, ammonium sulphate and other fertilizers were all mixed together and "stored" in a heap. If a top dressing was required, the agricultural equipment would be unable to approach this area.

"We would obtain it from another area" stated the kolkhoz's agronomist N. Kuz'mina, attempting to console us.

It turned out that the farm had still another storage point at its disposal: a silage trench. True, during the season of bad roads the machines could not reach it. At such times, the fertilizer was dumped nearby, directly onto the dirt.

It is known that the annual losses in mineral fertilizers at kolkhozes, sovkhozes and other agricultural enterpises amount to 6.5 million tons (in conventional mineral fertilizer).

The total amount of all losses is in excess of 9 million tons. This represents almost [illegible] percent of the total volume of deliveries to agriculture. Such a situation can only be alarming. Why is it that the mineral fertilizers are not being handled in a thoughtful and thrifty manner? In the opinion of the specialists, the losses are caused primarily by a shortage of specialized transport equipment -- freight cars and trucks and also storage warehouses equipped with multi-purpose loading mechanisms. We will not negate certain obvious facts: the railroad workers, for example, were under-supplied during the past five-year plan to the tune of almost [illegible] percent of the mineral fertilizer carriers and so-called "hoppers." Our industry generally did not produce any motor vehicles having all-metal bodies. The Soyuzsel'khozkhimiya Association was provided with only 59 percent of the warehouses required.

Why so few? Indeed, the funds made available by the state over a period of many years have certainly been sufficient for solving this problem. During the past five-year plan, for example, USSR Goskomsel'khoztekhnika (responsible during this period for the construction of storehouses) was provided with 550 million rubles. Actually, only 70 percent was spent. Since 1977, the construction of storehouses has dragged out at the railroad stations of Strugi Krasnyye in Pskovskaya Oblast, Staritsa in Kalininskaya, Vad in Gor'kovskaya and Solnechnogorsk in Moscow Oblast; a base has been under construction since 1978 in Volosovskiy Rayon in Leningrad Oblast. Many similar examples could be cited for other areas. What is the cause of such "prolonged construction work"?

"Poor work on the part of the contractual organizations" stated the chief of the Capital Construction Administration of the Soyuzsel'khozkhimiya Association P. Pantus, "The RSFSR Ministries of Transport Construction and Rural Construction, for example, fulfilled their plans for placing storehouse capabilities in operation during the past five-year plan by 65 and 59 percent."

Representatives of the contractual departments -- Deputy Minister of Transport Construction S. Voytovich, the chief of Glavtsentrosel'stroy of the RSFSR Ministry of Rural Construction P. Kuznetsov and others, also do not wish to consider themselves as being the guilty parties. After initially reproaching Soyuzsel'khozkhimiya for constant disruptions in the delivery schedules for complete equipment, they subsequently lashed out at USSR Gosplan which, according to them, annually approves tasks which surpass considerably the true potential of the contractual organizations.

"The volume of the construction-installation work carried out at storehouses erected by Mintransstroy [USSR Ministry of Transport Construction] during the past five-year plan" stated the chief of the Construction Industry Department of USSR Gosplan S. Bulgakov, "scarcely exceeded 1 percent of the overall annual program. A similar situation prevails in the RSFSR Minsel'stroy [Ministry of Rural Construction].

The references to super-tense plans are subject to criticism. Other factors are involved. The builders do not display the interest required for such projects as storehouses. Located as a rule at some distances from the base centers of the contractual organization, they pose a mass of problems for the builders -- delivery to the project of personnel, equipment and materials, organization of domestic services. All of the work is accompanied by tremendous losses in time. Nor was it an accident that the task for labor productivity last year, in Glavtsentrossel'stroy of the RSFSR Ministry of Rural Construction, was underfulfilled by 10 percent. This was followed by all of the attendant consequences: reductions in the funds for economic stimulation and material incentives. Will a leader who is concerned for the welfare of his collective also become disturbed over the fate of the future storehouses if a problem costs a ruble and the return is only a kopeck?

Is it true: were only the builders guilty with regard to the slow utilization of the resources allocated for erecting the storehouses? A great amount of guilt must rest with the clients -- the Sel'khozkhimiya associations. Yes, the builders were in no hurry to include cheap projects in the plan. But indeed the clients were also not seized by such a desire. Why was this? Indeed, it occurred because in order for there to be a sharp need for storehouses, the situation had to be very bad in the absence of such storehouses: a great amount of goods had to be lost! But there is a paradox here: the tremendous losses in mineral fertilizers are not reflected either in the financial or economic status of the Sel'khozkhimiya associations. The actual losses, which under today's system of storage are simply inevitable, are not being recorded in the documents. For all practical purposes, nobody maintains accounts on the losses. Neither in Leningrad nor in Pskovskaya Oblasts were we able to find materials which would confirm the losses uncovered. It was almost as though they had never occurred.

For example, there is not even a warehouseman to be found in the antiquated storehouses of the Za Kommunizm Kolkhoz in Pskovskaya Oblast. And it is this individual who is responsible for the quality and quantity of the fertilizers required for the fields. Either the farm's agronomist or workers from its bookkeeping department accepts the mineral fertilizers delivered; it depends upon who is at the site where the vehicles are unloaded. There are no scales available and the fertilizer is accepted based only upon the information in the invoice. Nobody is held responsible for losses and it is assumed that the land writes everything off. But the land does not make up the difference: over the past 4 years, the cropping power of the grain crops decreased twofold -- from 14 to 7 quintals per hectare.

It is obvious that control must be exercised over the ruble, over mismanagement and over the squandering of state property. This forces us to display greater interest in organizing a warehouse economy for the storage of mineral fertilizers. Indeed, this is an extremely important matter.

The correct use of just 1 ton of mineral fertilizer furnishes an increase in yield of either one and a half to two tons of grain, 6-7 tons of sugar beets and potatoes or 12 tons of vegetables. It is easy to estimate the benefit to the national economy if 9 million tons of mineral fertilizer were not lost while enroute from the plants to the fields.

Let us suppose that this reserve will be utilized considerably better if the work of the Sel'khozkhimiya associations is evaluated based upon the final results -- the production of farming products. As yet, the payments to the fertility service are computed only for the volume of work carried out. For example, the machine operators are given a task for applying mineral fertilizer to a definite area, with bonuses being issued from the wage fund for the fulfillment or over-fulfillment of this task. A tractor operator is not interested in whether or not the farm obtains a good harvest. He is not concerned over the manner in which the mineral fertilizer is used. This same system is employed for paying for the work performed by the drivers of trucks and also by those who carry out loading and unloading work. In certain oblasts in the RSFSR, attempts are being made to bring the interests of the agronomists and farmers closer together. This year, for example, they are attempting to do this same thing in Kingiseppskiy Rayon in Leningrad Oblast. The local Sel'khozkhimiya decided to conclude an agreement for complete complex servicing with the Kir[illegible]skiy Sovkhoz. However, this endeavor has come to a standstill. Why.

"Our economists are still racking their brains as to how best to make payment to Sel'khozkhimiya for the yield obtained" explained the 1st Secretary of the Municipal Party Committee A. Myachin, "The RSFSR Ministry of Agriculture is not furnishing any specific recommendations. We must ourselves find a solution for this problem. But a number of problems spring up immediately. Indeed the harvesting of agricultural crops is dependent not only upon the correct use of mineral fertilizers, but also upon a number of other factors.

The chief of the rayon agricultural administration V. Tokarev added:

"The production base of Sel'khozkhimiya is still weak and thus in order to fulfill the agreement with the sovkhoz it must devote all of its efforts to providing complex servicing for just one farm. But what about the remaining farms? No profit is realized if the fertility of some fields is raised at the expense of other fields."

Yes, there are many complexities. And there is obviously a need for the experiment conceived in Kingiseppskiy Rayon. But it must be reinforced by scientifically sound computations and economic analysis.

"It was one year ago that the All-Union Institute for Organization and Wages in Agriculture was tasked with developing the new system" declared the chief of Glavpeu of the RSFSR Ministry of Agriculture G. Kulik, "But unfortunately we still have no results in hand."

Thus, must we wait until recommendations are received for organizing the work in accordance with the new system? But other variants are already available for making more effective use of the mineral fertilizers and reducing their losses. This is borne out by the experience accumulated in Pervomayskiy Rayon in Khar'kovskaya Oblast. An industrial technology for employing fertilizers has been mastered here. A large agrochemical complex has been built which services 86,000 hectares of arable land. It has the necessary mechanisms and storehouse facilities at its disposal.

The fertility detachments apply 70 percent of the mineral fertilizer to the soil during the principal cultivation. The annual increase in yield in the rayon now exceeds 9,000 tons of grain. The expenses incurred for building the complex were repaid in less than three and a half years. The losses in fertility granules have been reduced considerably.

Certainly, the introduction of this method into operations on an extensive scale requires a thoughtful approach and thorough preparations. Unfortunately however, the RSFSR Ministry of Agriculture is not even attempting to disseminate this innovation or even to employ it in the form of an experiment.

* * *

The "Recommendations for Reducing Losses and Raising the Effectiveness of Use of Mineral Fertilizers" were approved by the USSR Ministry of Agriculture in 1978. However, the facts indicate that the scientific recommendations are not being implemented. It would seem that the situation should have changed with the creation of Soyuzsel'khozkhimiya. Unfortunately however, this did not happen. Moreover, the agrochemical services themselves performed in the role of detached on-lookers. As a matter of fact, no action has been taken by the Ministry of Railways or by the RSFSR Ministry of Agriculture, which long ago should have established reliable protection against losses.

It is obvious that it is not enough to have good intentions and technical instructions. Organizational and economic measures are also required: constant and strict control must be exercised over those guilty of low quality preparation of freight cars and trucks and also over each kilogram of mineral fertilizer lost. Equally important is the need for awarding maximum incentives to those who handle the national property in a thrifty manner and strive to achieve the final results -- high yields.

> From the Editorial Board. "The economic structure must be based upon thrift! -- this slogan, advanced during the 26th CPSU Congress, has received national support. In opening the new column, the Editorial Board invites the readers to participate actively in reviewing the reserves available for thrift and in developing a thrifty and zealous attitude towards national property. We await your guidance, analytical reflections, critical comments and recommendations.

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PRIVATE PLOT OPERATIONS IN TATAR ASSR REVIEWED

Moscow TRUD in Russian 27 Jun 81 p 2

[Article by G. Usmanov, chairman of the Council of Ministers for the Tatar ASSR, Kazan': "Economics of a Private Plot"]

[Text] It is true beyond any doubt that a heifer or young pig in a livestock shed or poultry in the barnyard constitute a solid addition to the country's food resources. The private sector is unconditionally recognized as providing reliable assistance to basic agricultural production.

Today, more than 2 million individuals, or 65 percent of the population are maintaining gardens in the Tatar ASSR. The area of the private plots -- 103,000 hectares. If it can be expressed in this manner, this represents an auxiliary department of the republic which furnishes one half of the gross yield of potatoes and a considerable proportion of the milk, meat, eggs, vegetables, fruit and berries. Although the number of farms in the rural areas is decreasing owing to migration of the population into cities, success has nevertheless been achieved in halting the reduction in the number of livestock per farm. For example, 182,000 cows are presently being maintained in the private sector. Some owners are selling up to 1,000 or more kilograms of milk.

At the Voskhod Sovkhoz in Aksubayevskiy Rayon, one out of every three families has a cow and every barnyard has a pig and poultry. Each year the sovkhoz sells up to 2,000 young pigs to its workers. Last year the manual and office workers supplied the procurement specialists with 447 quintals of milk, 215 quintals of meat, 25,000 eggs and 22 quintals of wool.

On this farm the interest displayed by the workers in their private plots is reinforced by practical measures taken by the workers' committee and the Board of Directors. Each year the livestock breeders are provided with a young pig free of charge. If they so desire, they can exchange a young bull for a heifer from the public herd. In addition, if a family works diligently in the public sector, it will be provided with grain and hay for its yard.

Feed is the principal concern of the owner of a household "farm." In order to eliminate any headache he might experience over exactly what he can store in his hayloft, he may be provided with some pasture or haying land. This is usually unsuitable land on which it is impossible to carry out either plowing or sowing operations -- forest strips or along the edges of forests. A great amount of work has been carried out in the republic in connection with improving the pasture lands being made available for the pasturing of privately owned livestock -- they were all included in the plans for reclamation work, carried out on a broad scale.

In many of the rayons, the farm leaders are furnishing equipment for tilling the private plots. Is a tractor or potato planter required? It is provided. Transport is also made available for transporting the crop to the home or market.

The benefit from such cooperation is beyond question. Experience has shown that the state plans for the delivery of agricultural products are being fulfilled ahead of schedule precisely at those kolkhozes and sovkhozes where the private plots are serving as reliable partners.

Throughout the republic as a whole, approximately 120,000 young pigs are being sold annually to the population. And still the requirement for them is not being satisfied fully. Thus we attempted to create non-commodity facilities for female cows, swine and poultry on the farms. We reasoned as follows: the products from such farms would be made available to public catering and the young stock would be sold to the people. In 1980, at the Kichuyskiy Fattening Sovkhoz in Al'met'yevskiy Rayon, approximately 100 calves, 1,000 young pigs and 40,000 chicks were sold to the population. More than 100 quintals of meat and 350 quintals of milk were sold to the state from the private plots. In short, experience warrants attention, similar to the creation of cooperatives, where the livestock and poultry of the population are being maintained on a collective basis.

Not only on individual farms but throughout the republic as a whole, a great amount of work is being carried out directed towards developing and strengthening the private plots. The state veterinary service is conducting diagnostic studies and giving preventive innoculations free of charge and it is treating livestock that is privately owned by citizens.

We are planning to supply the peasant yards in a better manner with meat and egg strains of young chickens. During the past few years, the Ptitseprom Trust has increased the capabilities of its incubator stations by almost twofold -- the requirements of the plots have been satisfied fully. However, many individuals have now taken to raising ducks -- the majority of our villages are located along the shores of streams and lakes and the villagers readily engage in the breeding of waterfowl. The demand for ducks has increased sharply. Zealous business executives have begun organizing non-commercial farms for 3,000-5,000 head, which serve to ensure that populations in their regions will be supplied with ducks.

Ptitseprom is presently engaged in creating associations for the production of poultry meat on an interfarm basis. According to our estimates, it will be possible next year to sell 10 million head of young poultry stock to the population. Moreover, this figure will be raised to 15 million by the end of the five-year plan.

Or let us look at another reserve for increasing the production of meat -- rabbits. It was 4 years ago that the Tatkrolikozverovod Society was created. Pedigree animals which have been raised on the best fur-farming farms are sold to those desiring to breed rabbits. Last year the rabbit breeders supplied the receiving points with approximately 20 tons of table meat.

These are all fine undertakings and yet I would like to mention some of the problems which are restraining the development of the economics of the private sector. On many of our farms, the private plots are being worked as one field. A kolkhoz tractor plows them up from one end of a village to the other, without raising the plow from the furrow. The traditional boundary strips which for centuries set off the borders of the tracts of land have disappeared entirely. It would seem that this is a fine development. The villagers set out for their private plots as though they were going to the public field.

But by no means is this method being employed in all areas -- more often than not the private lands are assigned in areas where the powerful Kirovets tractor cannot go. And no equipment has been specially adapted for work on such tracts or plots. During the 26th party congress, the task was assigned of increasing the production of miniature tractors having individual sets of implements. Special importance is attached to ensuring that the fulfillment of this task is not delayed for many years.

Or let us consider still another fact. During the past decade, 25,000 Zhigul', Moskvich and Zaporozhets vehicles -- a strong motor vehicle pool -- were sold to rural residents throughout the republic. But by no means were these vehicles equipped for transporting agricultural freight. Potatoes, hay and fertilizers are carried in the luggage compartment or on the roof. The industrial ministries must display concern for increasing the production of trailers for small motor vehicles.

Many unused reserves are available within the system for procuring surplus products from the population. The technical equipping of the points established for receiving, storing and processing the products procured is still at a low level. The procurement organizations lack the motor transport vehicles required for gathering up the fruit and tubers during the procurement season for vegetable, potatoes and fruit. Consumer cooperation often lacks the deficit industrial goods required for engaging in trade, on the basis of agreements, with the suppliers of vegetables and fruit.

Within the republic there are many small and so-called "unpromising" populated points having empty homes with private plots that have become overgrown with weeds. The use of such land represents an important reserve for developing the private sector. It is deemed advisable to allow citizens residing in cities to purchase these homes and to have private plots assigned to them.

The importance of the private plots should never be underestimated. Nor is it simply a matter of obtaining additional food products. The people spend a considerable portion of their free time in their gardens and in the collective orchards. It is here that the rising generation becomes hardened to work. All of this obligates us to solve the problem of the private plots in a more flexible, scientific and planned manner.

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AGRO-ECONOMICS AND ORGANIZATION

BELORUSSIAN EFFORTS TO CURB LOSSES OF AGRICULTURAL PRODUCTS

Minsk SEL'SKOYE KHOZYAYSTVO BELORUSSII in Russian No 5, May 81 pp 24-25

[Article by N. G. Zharko, deputy chief of the State Inspectorate of the Belorussian SSR Ministry of Procurement, and N. S. Rachkovskiy, chief State Inspector of the State Inspectorate for Purchases of Livestock Products: "A Reliable Shield Against Losses of Products"]

[Text] With due regard for the shipment of seeds our republic annually delivers 600,000 to 700,000 tons of potatoes to the public stock, including 200,000 to 280,000 tons to southern regions. Before being loaded into railroad cars, potatoes are sorted out and graded on farms. Therefore, 92 to 95 percent of the potatoes shipped are standard. However, owing to the prolonged stay en route and idle time at terminal stations, the standard potatoes that reach the consumer comprise only 70 to 75 percent and sometimes even less than that. When food potatoes are procured even for the needs of the republic's cities, up to 20 or 25 percent of the potatoes accepted by the enterprises of the Ministry of Trade are annually written off to losses or sold back to farms for livestock feed.

Or the following example. Owing to the poor quality of paper packages and bagging and inaccurate transportation, up to 30 or 40 kg of milk are lost in some stores every day. Calculations show that in Minsk alone the monthly losses of milk are equivalent to the purchases made from the population in Minskiy Rayon during the same period.

Or an example on a somewhat different plane, but of the same essence. No matter how well organized the work on livestock breeding on one farm or another is, forced slaughtering of livestock because of diseases or other reasons is inevitable. Under various pretexts a barrier is created on the part of meat combines to the acceptance of such livestock from farms. They try not to accept livestock for forced slaughtering, especially meat carcasses from killed animals. However, farms do not have refrigerating units. While bargaining is going on--"to accept or not to accept"--often this meat becomes worthless. Procurement organizations (meat combines) are also unwilling to accept poultry and sheep, artificially delaying their acceptance, especially during the period of completion of quarterly plans. After all, it is more profitable for them to handle one bull weighing about 400 kg than hundreds of hens and ducks and dozens of sheep.

This happens because the existing practice of planning the delivery of agricultural products to the consumer is based on the intersectorial principle, which gave rise to a certain economic isolation of every sector from the rest. Sectorial departmental goals and interests prevailed over the ultimate goals and national economic interests both in the area of capital investment and in the economic evaluation of the results of activity of every sector.

Let us briefly analyze some problems concerning the production and procurement of flax output in the republic.

The standing biological harvest makes it possible to fulfill the plans for the sale of flax output to the state almost every year. However, the shortage of manpower, lack of overall mechanization in harvesting work and major shortcomings in the organization of industrial preparation of the stock and of the processing of raw materials lead to great losses, which reach 25 to 30 percent of the grown harvest on individual farms during some years.

According to preliminary data (since for flax output the fulfillment of the sale plan extends from one harvest to the next, that is, from 1 July of the current year to 1 July of the following year, which is also abnormal, these periods require their regulation), the republic's farms will fail to deliver more than 166,000 tons of flax fiber output during the five-year plan. As practice tice indicates, the basic amount of this underdelivery with respect to the plan can be boldly included in the category of "losses."

With the existing agricultural practices the production of flax stock with a count below 1.00 is almost ruled out. However, in the republic from the 1977 harvest a stock with an average count of 0.74 was procured, in 1978, with an average count of 0.73 and in 1979, with an average count of 0.74. From the 1980 harvest the quality of the flax stock arriving from farms at flax plants is even lower than that, its count being only 0.72. We consider it necessary to apply the experience accumulated in the organization of procurement of sugar beets to the procurement of flax output, that is, establishment of additional centers, centralized transportation and their acceptance with due regard for the sugar content (that is, quality), which made it possible to change over to payment for the procured sugar beets according to the weight content of sugar in them.

The very form of acceptance of fiber flax output by flax plants should be improved. It should be accepted locally, on kolkhozes and sovkhozes, with the use of a tool evaluation of the quality of fiber by means of the SMT-200 machine tool-instrument developed at the All-Union Scientific Research Institute of Flax a few years ago and now refined and approved. This instrument makes it possible to introduce the tool method of evaluation of the content of fiber in fiber flax during its acceptance at flax plants, instead of the presently predominant organoleptic method. This will contribute to an accurate determination of the resources of procured fiber and of its quality and to fair settlements of accounts between procurement organizations and flax deliverers.

Speaking of shortcomings and significant losses of agricultural products, it is also necessary to mention some imperfections of our local bodies. Individual state inspectors do not yet ensure proper control over the process of procurement, storage, transportation and initial processing of agricultural products from the field to the plant. They do not wage an adequate fight for a reduction of losses and spoilage of agricultural products. At times they have a conciliatory attitude toward cases of violation of state procurement discipline and of contractual obligations by delivering farms and procuring contractors, resign themselves and do not put a stop to cases of mutual "amnesty" for the nonfulfillment of plans and contractual obligations for the delivery and acceptance of agricultural products both in terms of quality and quantity, as well as assortment, and do not exercise the rights granted them by the Statute on the State Inspector for the Purchases and Quality of Agricultural Products.

The very system of incentives for production is being improved. For example, as of 1 January 1981 the purchase price per ton of wheat was increased by 10 rubles, of rye, by 20 rubles, of barley and oats, by 13 rubles, of buckwheat, by 30 rubles, of food peas, by 80 rubles and of fodder vetch, by 60 rubles. The amounts of payments for products sold in excess of the plan were included in basic purchase prices.

The purchase prices of fiber flax output and sugar beets also rose. On the average, at the new prices the cost of 1 ton of flax fiber is 1,750 rubles--217 rubles more than the purchase price previously in effect.

The purchase prices of livestock products also rose. For 1 ton of first-category pork farms will now receive 160 rubles more, of second- and third-category, 142 rubles more and of fourth-category, 115 rubles more. For 1 ton of standard-weight first-grade milk the state now pays 284 rubles, or 31 rubles more than last year. Sheep will also bring more income to farms. The price of 1 ton of mutton of a higher degree of fatness (in live weight) was increased by 910 rubles, of an average degree of fatness, by 700 rubles and of a below-average degree of fatness, by 480 rubles. The purchase prices of sheep of the Romanov breed and of their crossbreeds also increased.

Kolkhoz members, sovkhoz workers and employees will greatly benefit from the increase in the purchase prices of livestock products during the sale of privately owned livestock.

In order to increase the incentives of kolkhozes and sovkhozes to augment the production and procurement of farm and livestock products, provision has been made for the payment of a 50-percent purchase price increment for the sale of products to the state in excess of the average level attained during the 10th Five-Year Plan. This level remains unchanged for the determination of the quantity of output for which the price increment should be paid during every year of the five-year plan. The new incentive system economically directs farms toward the attainment of the end result--maximum possible sale of grain, potatoes, vegetables, meat, milk and other products to the state.

The new system also imposes special responsibility on the managers of planning and agricultural bodies and state procurement inspectorates for the correctness and substantiation of the planning indicators assigned to farms, because under no circumstances can we permit a situation in which preferential conditions are created for some and the development of others is hampered without substantiation.

What the new economic incentive system gives farms can be judged from the following examples. In 1981 the republic's kolkhozes and state farms are to sell 1.8 million tons of grain to the state, which is 566,400 tons more than the average annual level attained during the 10th Five-Year Plan. With due regard for the payment of a 50-percent increment the republic's farms, in addition, will receive 37 million rubles for the sale of grain, almost 13 million rubles for the sale of sugar beets and about 48 million rubles for flax output.

Or let us take livestock products. On the average, in 5 years of the 10th Five-Year Plan kolkhozes, sovkhozes and other state farms annually sold 972,000 tons of livestock and poultry and 3,486,000 tons of milk. In 1981 kolkhozes and sovkhozes will sell 28,000 tons of livestock and 114,000 tons of milk in excess of the average annual level of the 10th Five-Year Plan. For this amount of sold output, in addition to the realized amounts, it is possible to obtain a 50-percent increment of approximately 54 million rubles, including 28 million rubles for livestock and 26 million rubles for milk.

The new planning system will undoubtedly contribute to the prevention and reduction of losses of agricultural products at the stages of their production, procurement and transportation.

Procurement enterprises and organizations were permitted to accept nonstandard fruits, vegetables and other perishable products suitable for use in fresh or processed form and standard perishable products delivered in excess of the volumes envisaged in forward contracts on the terms and at the prices agreed by the parties. A considerable part of the products will be shipped from kolkhozes and sovkhozes by the transport facilities of the procurement organization, or by centralized transportation. Centers for the acceptance and delivery of potatoes, vegetables and fruits, which will accept products and determine their quality directly on kolkhozes and sovkhozes, are to be established on 70 specialized vegetable growing farms by 1985. The products stored on farms will be credited toward their fulfillment of the plan for the sale to the state in the year of the actual sale.

An organized centralized transportation of livestock and milk contributes to a reduction of losses and to the preservation of the quality of livestock products. A total of 489,000 tons of large-horned cattle and 564,000 tons of milk were transported by this method in 1975 and 575,000 and 1,220,000 tons respectively, in 1980. The amount of livestock products delivered to the state by centralized transportation will increase even more in 1985. Other forms of relationships between the producers and consumers of agricultural products will be further improved and introduced.

This is required by the decisions of the 26th CPSU Congress and the 29th Congress of the Communist Party of Belorussia, on whose implementation our republic's field and farm workers work.

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AGRO-ECONOMICS AND ORGANIZATION

GOALS FOR NEW UZBEK SSR MINISTRY OF FRUIT, VEGETABLE INDUSTRY

Tashkent SEL'SKOYE KHOZYAYSTVO UZBEKISTANA in Russian No 5, May 81 pp 7-9

/Article by A. Alimov, Uzbek SSR minister of fruit and vegetable industry: "Goals for the 11th Five-Year Plan"/

/Text/ An improvement in food supply for the Soviet people is one of the key tasks in the further rise in their standard of living during the five-year plan that has begun. As the 26th CPSU Congress points out, it should be accomplished on the basis of an especially developed food program founded on a further advance of agriculture and intensification and improvement in its relations with all the sectors of the agroindustrial complex.

The establishment of the Union Ministry of Fruit and Vegetable Industry, which is in charge of specialized sovkhozes for the production of vegetables, potatoes, fruits and grapes and of processing industry enterprises, represents an important step on this path. The ministry will handle the procurement of fruit and vegetable products from kolkhozes, sovkhozes and other systems, their delivery to the all-Union stock, trade and processing, that is, implement all measures conducive to bringing as many products of fields, orchards and vineyards as possible with the smallest losses to the population. "Right now the volumes of output produced by agriculture," Comrade L. I. Brezhnev noted at the 26th CPSU Congress, "make it possible to greatly improve the supply of many types of foodstuffs for the population. For example, during the past five-year period the average annual per-capita consumption of vegetables and fruits increased much more slowly than their production. Losses were the main reason for this. Therefore, continuing to increase the production of fruits and vegetables, it is necessary to improve their transportation, storage and processing. To handle this is the direct task of kolkhozes, sovkhozes and the Ministry of Fruit and Vegetable Industry." In brief, the fight against losses must be waged with action, not with words.

The Uzbek SSR Ministry of Fruit and Vegetable Industry, which has recently been established on the base of the Uzplodoovoshchvinprom Agrarian-Industrial Association and is called upon to ensure a fuller satisfaction of the needs of the republic's population and of the country's industrial centers for vegetables, potatoes, melons, fruits and grapes and for the products of their processing, is one of the basic links of the Union ministry.

During the past five-year plan the Uzplodoovoshchvinprom Agrarian-Industrial Association united 11 canning and 15 wine making enterprises, 4 plant sovkhozes and 105 sovkhozes. Now in the system there are 43 processing enterprises and 204 plant sovkhozes and sovkhozes, as well as a network of firm retail trade, a central design and technological office, a planning institute, a specialized motor transport association, two construction and installation trusts and a number of other service enterprises and organizations, where more than 170,000 people live.

The concentration in a single complex of the functions of the production, procurement, industrial processing and sale of fruit and vegetable products was a powerful factor in an accelerated development of all sectors and enabled the collective of the agrarian-industrial association to fulfill the assignments of the 10th Five-Year Plan for all indicators ahead of schedule, to produce industrial products worth almost 230 million rubles in excess of the plan in 5 years and to additionally sell 280,000 tons of vegetables, potatoes, melons, fruits and grapes to the state.

During that time the volumes of industrial and agricultural production increased almost 1.4- to 1.8-fold, the assortment of products expanded considerably and their quality improved and the profitability of all production sectors rose. As a result, the ministry now produces almost 40 percent of all the republic's fruit and vegetable products. The decisions of the July (1978) Plenum of the CPSU Central Committee and the constant attention and help on the part of the Central Committee of the Communist Party of Uzbekistan and of the republic's government largely contributed to the attainment of these results.

The ministry faces important tasks during the 11th Five-Year Plan. The chief one is to become the main base for the production of the republic's commodity fruit and vegetable products and to bring their production up to 1.5 million tons at the end of the five-year plan. For this in 5 years the volumes of industrial output will have to be increased 1.4-fold and the production of vegetables, potatoes, fruits and grapes, 1.7-fold.

A great deal has already been done to accomplish these tasks. Territorial production-agrarian associations, into which the overwhelming majority of the system's industrial and agricultural enterprises entered, were established in the Karakalpakskaya ASSR and in almost all the oblasts in the republic. This made it possible to make the relations among them closer from the organizational-economic and technological-production points of view and to create a continuous technological process, from the production of raw materials to the output of finished products, directly in the localities.

Work on farm specialization has expanded everywhere. After the conclusion of this work, as a rule, farms will produce no more than two or three types of commodity output. For example, whereas in 1975 more than one-third of our sovkhozes engaged in the commodity production of vegetables and potatoes, now, only one-fourth. This made it possible to sharply raise the level of production concentration. Now one vegetable growing farm, on the average, produces 8,800 tons of vegetables, or 1.6 times as much as 5 years ago. We already receive 85 percent of all the fruit and vegetable output from specialized sovkhozes.

Work on the development of new land, production organization and growing of planting stock is being done. The implementation of these measures will make it possible to more efficiently utilize the available material and technical resources, to obtain higher harvests with minimal expenditures and, ultimately, to sharply increase output. Suffice it to say that during the past five-year plan the yield of vegetables increased by 32 quintals, of potatoes, by 16 quintals and of grapes, by 10 quintals per hectare and labor expenditures on their production were lowered by a factor of 1.1 to 1.2. This made it possible to make melon growing, horticulture and viticulture more profitable and to lower losses in vegetable growing. The proportion of unprofitable farms was reduced by almost one-half and comprised 19 percent in 1980 as compared to 35 percent in 1975.

Other figures also attest to the high efficiency of the adopted measures. For example, the rates of growth of production, yield, profitability and other indicators of the activity of our ministry greatly outstrip similar indicators on the farms of other systems. For example, whereas in 5 years the production of fruit and vegetable products increased more than 1.2-fold there, in our system it rose almost 1.5-fold. The yield of the main agricultural crops produced by our farms is also much higher than on the kolkhozes and sovkhozes of other systems.

The ministry's material and technical base was strengthened and expanded considerably. In 5 years more than 700 million rubles of capital investments were allocated for its development. More than 100 new industrial and agricultural enterprises were organized in the system during the past five-year plan, as a result of which during that time the sector's productive capital increased 2.3-fold. The sown areas of farms increased 1.2-fold and the areas of orchards and vineyards, almost 1.6-fold. At the same time, it should be especially noted that all the new orchards and vineyards were established on an industrial basis on large tracts of land and with due regard for advanced technologies. Varieties of pitted fruit crops and currents were planted on more than a third of them.

Emphasis will be placed on ensuring a further rise in the standard of farming, the most rapid conclusion of the sector's specialization and industrialization and an accelerated development of viticulture.

In accordance with the well-known decree on measures for the further development of viticulture in the Uzbek SSR, in whose implementation a decisive role is assigned to the republic's Ministry of Fruit and Vegetable Industry, during the 5-year period that has begun we will have to bring the volumes of grape production up to 1 million tons and of currant production, up to 70,000 tons, or to increase them 4.3- and 20-fold respectively as compared with what has been attained. In 5 years alone the areas of vineyards should be increased more than 1.5-fold and reach almost 100,000 hectares. The areas of orchards will also be increased accordingly. Dozens of new sovkhozes, especially in the piedmont zone, and a base for the production of trellis and containers will be established for this. A base for the production of machines for horticulture and viticulture will be expanded and the training of skilled personnel for these sectors of agriculture will be improved.

A great deal will have to be done to meet the population's needs for potatoes from local production, for an all-year round supply of fresh fruits and vegetables and for an improved trade in them, especially in the city of Tashkent.

In industry this task will be accomplished mainly as a result of the reconstruction of existing and the construction of new enterprises. Specialized canning plants will be built in Kattakurgan, Namangan, Gallyaaral, Kuvasay and Yakkabag and initial and secondary wine making plants, in Nukus, Denau and other places.

More than 3 months ago the historical 26th CPSU Congress completed its work and the 11th Five-Year Plan came into its own. Like the entire Soviet nation, the collective of the Uzbek SSR Ministry of Fruit and Vegetable Industry is fully resolved to respond to the decisions of the historical forum with action and new labor accomplishments and to do its utmost to give the homeland as many fruits of the land of sunny Uzbekistan as possible.

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AGRICULTURAL MACHINERY AND EQUIPMENT

IMPLEMENTATION OF MODERN TECHNOLOGY IN AGRICULTURE

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 6, Jun 81 pp 14-24

[Article by V. Tkachev: "Scientific and Technical Progress and the Introduction of Progressive Technology"]

[Text] As a result of the multifaceted and purposive work of the party and all workers in agriculture and branches related to it, the material and technical base of agricultural production is becoming stronger all the time. In recent years there have been more comprehensive mechanization and industrialization of farming and animal husbandry, and the power capacities of agricultural enterprises and the power availability for labor have increased.

The increased deliveries of modern technical equipment to agriculture by branches of agricultural machine building, including machine building for animal husbandry and feed production, have made it possible to appreciably increase labor productivity on the kolkhozes and sovkhozes, to reduce the proportion of heavy manual labor and to raise the level of qualifications of the specialists and machine operators. Therefore it is no longer possible to carry out the task set by the party of transforming agriculture into a highly developed sector of the economy without increasing the rates of technical supply for agricultural production or, consequently, without accelerating the development of branches that deliver machines and equipment to the kolkhozes and sovkhozes. The strengthening of the material and technical base for agriculture presupposes not only an increase in the volumes of technical equipment sent to agriculture but also constant improvement of its quality--high productivity, durability and reliability.

The modern development of machine building is accompanied by a limitation of the volumes of utilization of labor and material resources, including fuel and energy resources. During the past 20 years the prices of many kinds of technical resources have increased more than 10-fold worldwide and by the end of this century, according to some predictions, they are expected to increase 5-15-fold.

Our country is rich in the main kinds of technical resources; it depends little on the conditions of foreign markets. But its wealth is not inexhaustible. Therefore efficient utilization of them is one of the main tasks of the development of the national economy. "Intensification of the economy and its increased efficiency," emphasized General Secretary of the CPSU Central Committee, L. I. Brezhnev in the Accountability Report to the 26th Party Congress, ". . . consists mainly in ensuring that the results of production increase more rapidly than expenditures on it and, making it possible to achieve more while using comparatively less resources in production."*

Hence the need for stepping up the struggle for efficiency and quality of work. Special attention should be directed toward increasing labor productivity, acquiring new technical equipment and technology, and utilizing all existing reserves and possibilities for increasing the output of products and raising their technical level with minimum expenditures.

Production efficiency can be increased on the basis of the application of new technical solutions. But this does not diminish the role of organizational-administrative decisions that pertain, for example, to changes in the levels and the models for cooperation, specialization, structures for administration of the enterprise and so forth since in these cases technical solutions serve as a basis for the development of efficient new organizational and administrative models.

In the area of machine building for animal husbandry and feed production the increased application of new technology under the Eleventh Five-Year Plan will be based mainly on technological solutions that have been tested under production conditions and also on new developments of scientific research institutes, design bureaus and advanced enterprises.

Modern production is characterized by a rapid change of new machines, components and parts as well as improvement of the process of their manufacture. Therefore it becomes especially crucial to reduce the amount of time necessary for preparing for production. Therefore in recent years the branch has created standard technological solutions and applied highly effective standard technological processes and standard resetable equipment and fittings. Automated lines have been introduced: for lengthwise and crosswise cutting of coiled rolled metal, and stamping of large and medium sized parts and parts with long measurements. Under the Eleventh Five-Year Plan it is intended to expand the introduction of these developments.

In welding production they have developed: a modern classifier of standard technological processes and means of equipment, 14 separate technological processes, 41 kinds of resetable equipment and 8 kinds of fittings.

Under the Tenth Five-Year Plan more than a thousand units of standard welding equipment were manufactured and introduced, including: 800 semiautomatic machines with increased reliability for welding with carbon dioxides; universal manipulators with lifting capacities of up to 1,000 tons (they have been introduced at 50 plants of the branch), and more than 30 sets of isothermal equipment for supplying welding posts with carbon dioxide. All this contributes to raising the level of mechanization of welding work.

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*"Materialy XXVI s'yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1981, p 40.

The results of the introduction of standard technological solutions in welding production under the Tenth Five-Year Plan are characterized by the following indicators:

Level of Application, %:	
Standard technological processes	15
Standard resetable technological equipment	58
Standard resetable technological fittings	40
Economic effect, thousands of rubles	3,200

In the branch as a whole the dynamics of increased application of standard solutions are represented by these data:

	1976	1980	1985 (assignment)
Level of Application, %:			
Standard technological processes	1.32	18.4	24.0
Standard resetable fittings	2.90	25.0	27.0
Standard resetable and combined equipment	2.42	16.6	22.4

Large standard solutions can remain progressive for no less than 7-10 years and their creation, as a rule, is based on the solution to scientific and technical problems.

Under the Tenth Five-Year Plan the branch solved a number of scientific and technical problems related to improving technology and increasing production efficiency. In the foundry production they developed technology and equipment for precision casting in smelted models which provides for obtaining any configuration of high-quality casting (with the highest technical and economic indicators in the country). Their production cost is several times less than it is in a number of foreign firms and the proportional expenditure of subsidiary materials is 2-10 times less. The technological process for precision smelting that was developed by the Rostov Scientific Research Institute of Technology of Machine Building is protected by 29 author's certificates in the USSR and patents have been obtained in France, the United States and Czechoslovakia. Licenses for this work have been sold to Rumania, Hungary and the FRG. The technological process includes the application of new nonstearin pattern forms which have high durability and heat resistance.

At the present time the forms are being used at more than 80 plants of the country which produce more than 70 percent of the castings made for smelted models.
The Rostov Scientific Research Institute of Machinery Manufacturing Technology has created new binding materials which give ceramic forms high durability, heat resistance and gas penetrability. This has made it possible to fully automate the process of their manufacture.

A single-position highly productive automated machine for manufacturing patterns, a principally new schema and set of equipment for forming ceramic coatings with hot loose filler, and other equipment have been created. As a result of their introduction, the technical level of casting has risen sharply in the Gossel'mash Association, at the Tselinograd and the Kirovograd iron casting plants and a number of other enterprises where the main technological processes and auxiliary and transportion operations have been mechanized and progressive technology is being applied.

The Kurgansel'mash production association and the Kovel'sel'mash plant have assimilated and introduced a technological process for the manufacture of instruments, stamps and press-forms by the method of casting in ceramic forms using permanent patterns. The economic effect amounted to 1.5 million rubles. By now the proportion of progressive equipment in casting has exceeded 40 percent and 70 percent of the labor is mechanized. The complex of measures conducted in the branch for raising the technical level made it possible under the Tenth Five-Year Plan to release about 150 workers. If one takes into account the rather small absolute volumes of casting, this figure is significant. The higher technical level and greater efficiency have been provided by the introduction of the results of large developments in the technology of various kinds of production.

In 1974-1980 the branch changed over to the manufacture of 34 kinds of parts using progressive methods of cold three-dimensional stamping. The economic effect reached 1,675,000 rubles, 1,160 tons of metal were saved, and the labor savings were equal to releasing 125 men. Moreover, the introduction of a process of hot three-dimensional stamping made it possible to obtain an economic effect of more than 70,000 rubles, to save 1,500 tons of metal and to save the labor of 35 men.

At the Rezekne milking machine plant labor-intensive processes of grinding and polishing are being replaced by technological processes and installations for burnishing the body of the milking machine and the nozzles. The economic effect amounted to 170,000 rubles, 90 tons of nonrusting steel pipes were saved, and the labor savings were equal to releasing 20 men. During preparation of production for the new milking aggregate a technological process was developed and introduced by seaming the milking machine instead of making it out of two parts and then cutting and welding it. The Kovel'sel'mash plant has arranged the production of links for the transporter chain by precision stamping from strip billets instead of drop forging. The economic effect from the introduction of the new process reached 700,000 rubles during three years, 1,500 tons of metal were saved, and the labor savings were equal to releasing 35 men.

The Liyepaysel'mash plant, instead of manufacturing caps and nipples on automatic lathes, introduced a method of cold extrusion. The economic effect amounted to 28,500 rubles, 174 tons of metal were saved, and labor savings equaled the release of 6 men.

At the Frunzesel'mash plant the manufacture of tacks and hooks by cutting them on lathes was replaced by the method of cold upsetting, which made it possible to save 100 tons of metal and to increase labor productivity 1.5-fold.

The manufacture of cogged wheels and sprockets by the hot rolling method has been significantly developed recently in domestic and foreign machine building. As compared to the cutting method, this technology makes it possible to increase productivity 2-3-fold, to increase the wear resistance of sprockets by 25-30%, to reduce the number of operations, to provide for a savings on metal of up to 20-30%, and also to reduce the expenditure of fuel and energy resources by an amount of 4,000 kilowatt hours of electric power per 1,000 parts. In 1980 alone more than a million sprockets were manufactured by this method. The annual economic effect from its introduction amounted to about 2 million rubles. There are about 16 rolling mills in operation at 5 plants of the branch.

The more progressive work in cold stamping includes the creation of complexes of means of mechanization for highly productive cutting of sheet metal, sectioned and profiled rolled steel, and also lines for crosswise and lengthwise cutting of coiled steel. More than half of the material that is used is processed by cold stamping methods.

One of the ways of increasing the durability and improving the quality of parts and also sharply increasing labor productivity is to expand the use of small batches of bent profiles and manufacture them in an automatic cycle using profile-bending machines and lines that are based on them. Bent profiles are distinguished by more efficient distribution of metal in the cross-section for work under loads. Moreover the process of forming profiles--bending and stretching the metal--makes it possible to obtain more durable parts. Consequently, the designs of bent profiles have less mass and greater durability. The method of making profiles replaces the element-by-element bending on presses and frees up a considerable amount of equipment and space. Thus at the Nezhinsel'mash plant alone the introduction of the progressive method of making profiles for feed distribution troughs made it possible to change the stamp-welding design of the part that is manufactured from three parts with a thickness of 1 millimeter to the design of a trough that consists of two parts with a thickness of 0.8 millimeters. The quality of welding improved considerably as a result of the reduced number of parts in the unit, the labor saved amounted to releasing 70 workers, and the savings on metal amounted to 1,400 tons per year.

In the past six years 34 new kinds of profiles have been assimilated. The savings on rolled metal has exceeded 2 percent of the overall volume of processing metal, and the annual production volume of bent profiles has increased almost 2.5-fold.

Plants of the branch have introduced about 30 profile bending machines and created standard automated lines for making profiles which are based on the new principle of "flying cut" using universal press equipment.

The Pyatigorsksel'mash production association, the Frunzelsel'mash plant and others have introduced six automated installations for noncutout stamping of parts from strips. The application of the automated installation for noncutout punching of parts at the Frunzelsel'mash plant alone made it possible to save more than 100 tons of metal per year and to increase labor productivity 2.5-fold.

The problem of mechanization and automation of cold stamping can not be solved without the application of coiled rolled metal--standard and hot-rolled belts and broad-coil rolled metal. The cutting of these materials on automated lines produces a savings of 5-8 percent of the metal, increases labor productivity 2-4-fold and provides for the utilization of multiple sequential stamping.

At the present branch there are about 30 automated lines for processing coiled steel in operation in the branch, and a number of standard designs of automated lines for lengthwise and crosswise cutting, and cutting and stamping parts of various dimensions have been created. At the Frunzesel'mash plant, for example, they have developed a completely stamped design for one of the parts so that it can be manufactured from coiled rolled metal on an automated line. The metal-intensiveness of the machine was reduced by 5 kilograms, about 900 tons of rolled steel were saved each year, and the effect was about 100,000 rubles. There are many examples like this.

In 1980 the branch processed about 13,000 units of coiled rolled metal. This volume could be much greater even without expanding capacities if the orders from the plants for coiled rolled metal were filled more completely.

During the past five years the proportion of the application of progressive technology in cold stamping increased 2.8-fold and that of progressive equipment--almost 3.5-fold. In 1980 76 percent of the labor was mechanized. The output of cold stampings increased 1.5-fold.

The production of parts made of plastic is increasing even more rapidly. During the six years of the branch's existence it has more than doubled. For example an average of 2 percent of the material in a machine for milking cows or equipment for feeding and maintaining poultry is plastic (according to data from foreign literature the expenditure of polymers on one agricultural machine amounts to about 2 percent of its weight). A series of projects have been conducted which make it possible to increase the proportion of progressive equipment and the production of plastic parts to almost 80 percent.

The use of plastics produces a large economic effect. Thus the introduction of metal-polymer friction couples at the Frunzesel'mash plant made it possible to release 54 men and to save 710,000 rubles. The use of plastic parts in the feed distributor at the Kvasilovfermmash plant produced about 540,000 rubles in savings, and the use of polymer parts in machines for crushing feeds at the Novograd-Volynsk agricultural machinery plant made it possible to save 500 tons of metal, to save the labor of 180 men and to obtain an annual economic effect in the amount of 1.2 million rubles. By 1980 the proportion of products made of plastic manufactured by progressive methods amounted to about 93 percent.

The branch has done a large amount of work to research, develop and introduce processes for strengthening working parts of agricultural machines and protecting them from active abrasive-corrosive effects. The branch's leading institute, the Rostov Scientific Research Institute of Machinery Manufacturing Technology, has many years of experience in this area. Processes of strengthening with induction facing with solid alloys and selective electro-contact plating (EKP) are being used ever more widely in plants of the branch. The distinctive feature of this process is the fact that the plating belt is joined to the base in the solid phase (without the formation of a cast nucleus) in one pass over the entire breadth of a belt up to 25 meters wide and 0.3-1.5 millimeters thick, with the process taking place continuously. The advantages of this method include: high productivity (up to 500 cubic centimeters per minute); the possibility of using fusing materials with various thermophysical properties; uniformity and stability of the properties of the wear resistant layers that are obtained (especially thin ones); the insignificant amount of distortion of the long and thin-edged reinforced parts; and the possibility of complete mechanization of the process.

The fusing materials used for EKP are solid bands made of instrument or alloyed steels of the U10A, Kh6VF, R9 and V2F types and also special powder and sinter belts that have been developed by the institute.

The high operational characteristics of the edges that have been strengthened by electrocontact plating with wear resistant belts are confirmed by the results of extensive economic testing in various soil and climate zones of the Soviet Union. In operation the edges of these parts are self-sharpening, they ensure a very clean cut, and the durability increases 2-4-fold.

The highly technological nature of the plating process makes it possible to fully automate the process of strengthening the parts.

Under the Tenth Five-Year Plan the introduction of the plating process at the Dnepropetrovsk combine plant for strengthening the disks of the sugar beet harvesting combine (1976) and the Mar'in-Posadsk experimental plant for strengthening the disks of the cutter for the root stalks of hops (1978) produced an economic effect of 758,000 rubles.

The induction surfacing method makes it possible to use hard alloy layers that are 0.3-2.5 millimeters thick with a productivity of up to 20 kilograms per hour and with a high stability of the chemical composition of the applied layers.

The main advantages of the method are that it is possible to mechanize and automate the process under the conditions of mass production, that there is no need for preliminary processing of the surface, that the fusion is highly durable, and that it is simple to conduct the technological process.

Most of the alloys that are used are inexpensive composite ones that are based on iron which, in terms of the effect achieved, in a number of cases are as good as costly alloys based on nickel and wolfram. The branch has developed a range of alloys and pseudo-alloys that provide for high wear resistance under the conditions of abrasive, hydroabrasive and corrosive-mechanical wearing with varying degrees of dynamic effects. The surfacing materials are produced industrially.

The strengthening of working parts by induction surfacing have been introduced at the Gomsel'mash production association at the following plants: Orlovsksel'mash, the Belotserkov Agricultural Machine Building Plant imeni 1 Maya and other enterprises of the branch. The overall economic effect is more than 5 million rubles.

The technology of bimetallization with bronze of the OtsS5-5 safety valve seats introduced at the Pugachevptitsemash plant in 1979 made it possible to reduce the expenditure of bronze more than 35-fold and to obtain an economic effect in the amount of 127,700 rubles.

The introduction of centrifugal surfacing of revolving bodies at the Gomsel'mash Production Association, the Bobruysk Fertilizer Application Machinery Plant and at the Menkentzhivmash plant will provide for saving 150 tons of bronze and obtaining an economic effect of more than 500,000 rubles.

The simplicity of the method and the efficiency of its utilization are making foreign firms interested. Licenses have been sold to the Jap.nese firm Kobasi-Kogio and the Tekhnika enterprise in Bulgaria.

The method of comprehensive thermo-diffusion alloying which was developed by the Rostov Scientific Research Institute of Machinery Manufacturing Technology makes it possible to surface steel and iron parts with a wear-resistant and corrosion-resistant layer up to 30 millimeters thick. At the present time this method is being used to strengthen up to 16 million parts a year. Among them are cutting blades of shearing implements, segements of hay mowers, parts of fuel equipment and so forth. The method provides for increasing the durability 3-10 fold as well as repeated utilization of the technological working mixture.

The introduction of the process for strengthening parts of the atomizers of liquid fuel sprayers of steam boilers at the Amursel'mash plant in 1978 and Pugachevptitsemash plant in 1979 made it possible to increase the service life of these parts 8-10-fold and to obtain an economic effect of 416,000 rubles and 86,000 rubles, respectively.

One set of reinforced parts of the atomizer (instead of the 4 that were used) provide for continuous operation of the boilers for 8-10 years, that is, throughout the entire service life of these aggregates. The economic effect amounted to more than 1 million rubles. Moreover, as a result of maintaining continuous operation of the sprayers, up to 2 percent of the liquid fuel is saved.

At the present time the branch has begun to work on investigating plasma strengthening and other processes of plasma technology.

The process of air-plasma cutting (VPR) has been widely developed. The introduction of one VPR installation makes it possible to increase labor productivity in procurement operations 2-3-fold as compared to the traditional methods of cutting, to release 2-3 workers, to save about 90,000 cubic meters of oxygen and about 30 tons of natural gas (by replacing gas cutting with air-plasma cutting), to reduce expenditures on metal cutting instruments by replacing mechanical cutting with VPR, and to save a considerable quantity of solid alloys or fast cutting steel.

Under the Tenth Five-Year Plan most of the work was done on air-plasma cutting of pipes of various profiles and sheet metal.

During the years of the Tenth Five-Year Plan enterprises of the branch introduced: eight mechanized lines for air-plasma cutting of circular pipes at the Uman'sel'mash, Sal'sksel'mash, Lyubertskiy Agricultural Machinebuilding Plant imeni Ukhtomskiy and other production associations; ten mechanized lines in installations for air-plasma cutting of sheet metal up to 40 millimeters thick at the Sosnovoborskiy mashinostroitel'nyy, Radvilishksel'mash, Nikolayevsel'mash and other plants. All this made it possible to obtain an annual economic effect of more than

260,000 rubles, to release more than 45 men, and to save more than 700,000 cubic meters of oxygen and about 1,000 kilograms of cutting material containing wolfram.

Agricultural machine building, including machine building for animal husbandry and feed production, has an important role in solving problems of further advancing agriculture, changing it over to an industrial basis in a planned way and continuously supplying the population with food products. The main tasks of the branch are to provide for complete mechanization of feed production and to raise the level of mechanization of animal husbandry significantly. To this end it is necessary to develop more extensively the work for reconstructing existing plants for producing feed harvesting machines and equipment for processing feeds, and to create large new enterprises.

In keeping with the Main Directions for the Economic and Social Development of the USSR in 1981-1985 and the Period up to 1990, our branch will have to increase the output of sets of highly efficient machines and equipment that provide for the introduction of progressive technological processes for procuring, preparing and distributing feed and maintaining and raising livestock and poultry, and also equipment for fresh water fishing. It is intended to expand the production of self-propelled feed harvesting machines and to increase the output of machines with increased productivity, cargo lifting capacity and passability for applying organic fertilizers to the soil, a means of transportation with increased capacities for transporting green feed mass, highly productive loading equipment and also equipment for initial processing, cooling and storage of milk on the farms.

In order to utilize modern technical equipment more efficiently and obtain a fuller return from it, it is necessary to step up the fight for observance of the rules for its maintainance, operation, repair and technical servicing. As practice shows, the consumers of agricultural equipment frequently violate these rules grossly, and Rossel'technadzor does not exercise strict control over the technical condition of machines and equipment or the observance of these rules.

L. I. Brezhnev in the accountability report to the 26th party congress noted that "the conditions under which the national economy will be developing in the 1980's make it even more urgent to accelerate scientific and technical progress . . . . Today, looking forward to the next five or ten years, we can not forget that it is precisely during these years that we shall establish and create the national economic structure with which the country will enter the 21st century."*

During the years of the Eleventh Five-Year Plan, as a result of a higher technical level without enlisting new labor force, the branch will have to increase the annual output of products almost 1.5-fold and provide for the development, assimilation and delivery to agriculture of about 200 kinds of new machines.

In order to carry out this task it is intended to solve such large scientific and technical problems as: constructing comprehensively mechanized shops for precision casting in smelted forms; research and development of technical processes and equipment which provide for obtaining blanks that are as close as possible in form and size to the prepared parts; the creation and introduction of progressive highly productive equipment, automated lines and means of mechanization and automation for cutting and stamping parts from rolled steel, belts and piece blanks; mechanization and automation of series and small-series production on the basis of reset automated and flowline-mechanized lines and equipment with program control; reserach, development and introduction of methods of plasma technology and progressive methods of strengthening parts of machines.

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*"Materialy XXVI S'yezda KPSS," pp 42, 44

Casting will develop along the path of the creation of comprehensively mechanized shops for precision casting in smelted forms on the basis of new technology which provides for a sharp reduction in the production cost of casting. To follow this direction at the Aktyubinsksel'mash and other plants will make it possible to reduce the volume of mechanical processing and the expenditure of metal, to implement comprehensive mechanization of the process, and to reduce labor-intensiveness by 30 percent and the cost of preparing the castings by 25 percent.

At the present time work is being done to manufacture teeth of cutting instruments by the method of casting in smelted forms. The economic effect just from production costs with production by precision casting under the annual program of 20 million double teeth (the country's demand) amounts to 12.8 million rubles. Moreover, the savings on rolled metal will amount to 28,400 tons (according to data of Giprokombaynprom) or 36,000 tons--according to the expenditure norms of the Tula combine plant.

It is intended to construct a shop for precision casting at the Aktyubinsksel'mash plant and the Gomsel'mash production association. Under the Eleventh Five-Year Plan the annual output of precision casting in the branch will increase more than 5-fold.

Sections will be created for cold pressing of union nuts, nipples, caps, hydraulic cylinders, bushings, pipe connections and so forth at the Sal'sksel'mash production association and the following plants: the Gomel' casting and standard plant, Liyepaysel'mash, Kolomyyasel'mash, and Sel'khozagregat (Bobruysk).

During the years of the Eleventh Five-Year Plan it is intended to change a total of 57 parts from processing by cutting to processes of cold three-dimensional stamping. This should provide an economic effect of 3.6 million rubles and make it possible to save 3,835 tons of metal and to save the labor of 610 men.

In cold stamping production it is intended to create and introduce new highly productive equipment, automated lines and means of mechanization and automation for cutting and stamping parts from rolled metal, strips and piece blanks, and to develop and apply progressive technological processes for the manufacture of machine parts by the method of cold sheet and three-dimensional stamping. Carrying out these tasks will provide for an annual savings of 30,000 tons of metal and make it possible to save the labor of more than 2,000 workers.

For the first time in the USSR it is intended to introduce domestic automated lines for lengthwise and crosswise cutting of rolled metal up to 4 millimeters thick. It is intended to use standard resetable automated lines for stamping parts from rolled metal and sets of means of mechanization for cutting sheet metal, bent profiles and corners according to given programs.

Under the Eleventh Five-Year Plan the annual volume of processing of coiled steel in the branch should increase approximately 10-fold and amount to more than 300,000 tons. The annual volume of processing of standard and hot rolled belts will increase by almost 30 percent and the production of small batches of bent profiles on profile bending machines will increase 2-fold. The implementation of these measures will make it possible to considerably raise the technical level of the production of cold stamping at enterprises of the branch and to raise the level of automation and mechanization of labor from 76 percent in 1980 to 78.8 percent in 1985. It will be possible to save the labor of 1,500 men and the economic effect will amount to more than 6 million rubles. During the five years the annual volume of rolling of sprockets will increase 3.5-fold; it will be necessary to introduce the process of hot rolling of cogged wheels at the Yelgavsel'mash, which will reduce the expenditure of metal by 900 tons and save the labor of 15 workers.

Before 1985 the Syzran'sel'mash and Gomsel'mash production associations and the Orsel'mash and Frunzesel'mash plants will introduce 18 machine tools for rolling the teeth of sprockets for chain transmissions, which will provide for saving 8,000 tons of metal a year.

Measures for raising the technical level include expanding the application of thermoplastic polymers (polyethylene, polypropylene, polystyrene and so forth) and also metal-polymer compounds.

The higher level of concentration and specialization of production will make it possible to use more highly productive equipment and fittings and to increase the volumes of production without enlisting additional human resources. Expansion of the volume of the use of polymers in machines for animal husbandry and feed production to 9,000 tons (in 1985) will take place as a result of a changeover to the manufacture from plastics of the more widely used parts like seals, pulleys, scrapers, valve devices, mounting links, and so forth.

The use of metal-polymer parts by plants of the branch should have an economic effect of about 2.8 million rubles a year and save on the operation of 280 units of metal cutting equipment and the labor of 820 workers.

Under the Eleventh Five-Year Plan it is planned to complete the creation of a specialized press-form industry for manufacturing parts made of plastic at the following plants: the Soroki technological equipment plant, the Rezekne milking machine plant and the Smolensk technological fittings plant. The enterprises are provided with modern equipment and technology, which sharply improves the quality of press-forms and reduces their labor-intensiveness.

As a result of the higher technical level of the production of parts made of plastics in 1981-1985 we expect a reduction in the expenditure of ferrous and nonferrous metals of more than 13,000 tons, the release of more than 350 units of metal cutting equipment and 4,000 square meters of production space and savings of the labor of 300 workers. The economic effect will exceed 10 million rubles.

Plasma technology will be widespread in machine building for animal husbandry and feed production. During the five years it is planned to introduce: 17 mechanized lines for air-plasma cutting of circular and rectangular types (the Neris Production Association, the Orlovskael'mash and Frunzesel'mash plants, and others); 10 mechanized lines for air-plasma cutting of sheet metal (the Uman'sel'mash Production Association and the Orsel'mash Plant); 17 installations for plasma-arc welding (the Sal'sksel'mash Production Association, the Rigasel'mash and Liyepaysel'mash plants and others); and three installations for plasma spraying (the Chelyabinskzhivmas, Frunzesel'mash and Brestsel'mash plants).

The implementation of the earmarked program will make it possible to obtain an economic effect of more than 7,000 rubles, to save the labor of more than 100 workers, and to save about 1 million cubic meters of oxygen, more than 300 tons of propane-butane and more than 1,500 kilograms of cutting materials that contain wolfram. The application of processes for strengthening working parts of agricultural machines will be expanded greatly.

Under the Eleventh Five-Year Plan it is intended to introduce the process of EKP for strengthening parts of the screw conveyor type (Uman'sel'mash, the Novograd-Volynsk agricultural machinery plant), and anticutting plates of blades (Belotserkov Agricultural Machine Building Plant imeni 1 Maya), which during operation will provide for a savings of more than 25,000 tons of rolled metal and produce an economic effect of more than 600,000 rubles.

By the end of the Five-Year Plan the volume of surfacing of cutting parts will amount to about 15 million pieces, which will make it possible to save about 10 million tons of rolled metal annually. During the five years at just four plants the quantity of surfaced parts will increase from 3 million to 11 million units.

A number of enterprises will introduce the process of manufacturing bimetallic bearings by the method of centrifugal induction surfacing, which will provide an economic effect in the production sphere of more than 300,000 rubles and will make it possible to considerably reduce the consumption of bronze which is in short supply.

The application of the method of comprehensive thermo-diffusion alloying opens up the possibility of mass manufacture of parts for poultry waterers made of inexpensive low-carbon steels and, in turn, the possibility of using highly productive processes of cold smelting instead of mechanical processing and completely automating their production. Such comprehensive technology will provide for the output of 20 million sets of parts for existing production areas with an economic effect in the production sphere of more than 500,000 rubles.

The effect of scientific and technical progress in the branch is the total of the effects from the introduction of advanced technology in each kind of production. But this is not a simple arithmetic sum. Thus the introduction of comprehensive thermo-diffusion alloying, which itself raises the technical level of thermal production, makes it possible to change a number of parts over from mechanical processing to cold pressing.

Intra-industry ties complexly join all kinds of processing into one industrial process. On the whole, the rise of indicators of production efficiency in the branch under the Tenth and Eleventh Five-Year Plans can be characterized by the following data (percentages):

	1980	1985
Degree of mechanization and automation of labor	59.0	63.5
Increase in labor productivity resulting from higher technical level	4.3	4.9
Proportion of progressive technology	29.1	37.1
Proportion of progressive equipment	25.1	33.0

Such results of scientific and technical progress in the area of technology essentially improves the quality of machines for animal husbandry and feed production with a significant reduction in the expenditure of material and energy resources.

The introduction of the entire complex of measures under the Eleventh Five-Year Plan will provide for further acceleration of scientific and technical progress in the branch and will make it possible to increase deliveries of machines for animal husbandry and feed production 1.3-fold as compared to the Tenth Five-Year Plan. Moreover there will be a sharp increase in the output of self-propelled and trailer combines, self-propelled mowers and crushers, coiled press-pickups, feed grinders, rotary mowers, pickup balers and bale carriers, motorized feed distributers and mixers, milk reservoirs and coolers, and other technical equipment.

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AGRICULTURAL MACHINERY AND EQUIPMENT

DEVELOPMENT OF AGRO-INDUSTRIAL COMPLEX, EQUIPMENT REQUIREMENTS

Moscow TEKHNIKA V SEL'SKOM KHOZYAYSTVE in Russian No 5, May 81 pp 3-5

[Article: "Development of the Agro-Industrial Complex"]

> [Text] "In the interest of successfully carrying out the food program, achieving uniform planning and proportional and balanced development for the branches of the agro-industrial complex, strengthening its logistical base considerably, improving economic contacts between the branches, organizing efficient interaction among them in intensifying the production of agricultural products and improving the preservation, transporting, processing and delivery of the products to the consumers."
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> From the "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990."

The Communist Party of the Soviet Union is carrying out a tremendous amount of organizational work aimed at fulfilling its programmed statute -- "Everything in Behalf of Man, For the Benefit of Man." The policy of the 24th and 25th Party Congresses, which called for a more profound change in the national economy towards diverse tasks associated with the welfare of the people, has been further developed in the decisions handed down during the 26the CPSU Congress.

The economic strategy of the party during the Eleventh Five-Year Plan is that of further improving the welfare of our Soviet people. This task will be fulfilled by means of stable development of the national economy, an acceleration in scientific-technical progress and the conversion of the economy over to the industrial path of development. In addition, this fulfillment will be assisted by the rational use of the country's production potential, by maximum economies in the use of all types of resources, by concentrating these resources in the principal areas for the country's socio-economic development and by achieving improvements in the quality of the work.

One form for the concentration of resources is that of a special purpose food program. The complete satisfaction of the population's requirements for products is both an economic and a socio-political task. As a result of implementation of the agrarian policies of the CPSU, the foundation was laid for modern agricultural production which is fully capable of meeting the food requirements of the people.

During the period between the 25th and 26th CPSU Congresses alone, the country's agriculture assimilated more than 170 billion rubles -- almost one third of all capital investments in the national economy. It received 1.8 million tractors, approximately 540,000 grain harvesting combines and many other items of equipment and approximately 390 million tons of mineral fertilizer. The areas of irrigated and drained land totalled almost 35 million hectares. All of the above brought about considerable successes in the grain economy. Increases took place in the production of meat, milk and eggs. However, the difficulties involved in supplying the population with meat have still not been overcome.

In terms of calorific value, the requirements for food products are being satisfied fully throughout the country and in fact they even surpass the scientifically sound norms. And when we speak of the food program, we necessarily have in mind the production of products for further improving human nutrition. The health, mood and work activity of people are largely dependent upon the availability of full-value nourishment. Extremely urgent measures are being undertaken at the present time in the interest of solving the food problem.

"For the purpose of radically solving the problem" stated L.I. Brezhnev during the 26th CPSU Congress, "we consider it necessary to develop a special food program. This program must bring about a considerable increase in the production of agricultural products. It must draw agriculture closer to those branches engaged in the storage and processing of its products. And certainly to trade. In other words, its goal is that of solving as rapidly as possible the task of continuously supplying the population with products." The party, soviet and economic organizations are devoting special attention to the work concerned with creating such a scientifically sound program. Its foundation -- further improvements in agriculture and increased agricultural efficiency through consistent intensification of production. "In the future, we will provide agriculture with large amounts of financial and material resources and continue the planned conversion of this branch over to an industrial basis" stated Comrade L.I. Brezhnev during the 26th CPSU Congress, "But the center of gravity today -- and this is a distinctive feature of the agrarian policies during the 1980's -- is shifting towards the return being realized from capital investments, to growth in agricultural productivity and to strengthening and improving its contacts with all branches of the agro-industrial complex."

An important condition for production intensification and for introducing scientific achievements into operations is that of further developing the logistical base of agriculture and improving its utilization. During the Eleventh Five-Year Plan, agriculture must be supplied with 1.87 million tractors, 1.45 million trucks and 600,000 grain harvesting combines. Whereas at the present time the power-worker ratio is roughly one and a half times lower than that in industry, by the end of the five-year plan it will have increased by a factor of 1.5 and reach 40 horsepower per worker. Growth in the technical equipping of production will make it possible to complete complex mechanization for the production of the principal agricultural crops and employ industrial technologies more extensively and it will promote optimization of the schedules for the carrying out of field work. The level of mechanized operations in feed production and in animal husbandry will be raised considerably. In the final analysis, this will serve to raise labor productivity and improve working conditions.

The agricultural workers are waiting for their partners in the agro-industrial complex -- workers attached to the enterprises of tractor and agricultural machine building -- not only to fulfill their equipment delivery plans but also to raise considerably the quality of that equipment and its operational reliability. This also applies fully to deliveries of spare parts.

A requirement exists for rapidly overcoming the disproportion which exists in the production of powerful tractors and the levelling machines for them and for accelerating the production of a powerful row crop tractor and a more productive and improved grain harvesting combine. We cannot recognize as normal a situation in which agriculture is by no means being supplied with the equipment required, equipment as called for in the System of Machines. We must overcome more rapidly the shortcomings noted in the production of equipment, the lack of coordination in planning and supply and we must eliminate the practice of orienting operations towards the production of products which are advantageous to enterprises not concerned with satisfying the requirements of the kolkhozes and sovkhozes.

The absence of a number of extremely necessary machines is disrupting implementation of a scientifically sound system of farming and this in turn is resulting in considerable losses. For example, let us take Altayskiy Kray. Here the implementation of soil-protective cultivation in all areas is being hampered by a shortage of 4,000 sweeps, more than 4,000 BIG-3 harrows, more than 3,000 anti-erosion sowing machines and 2,000 slit-makers.

The kolkhozes and sovkhozes have been forced into producing the missing items of equipment under semi-primitive conditions. Last year, for example, more than 5,000 harvesters were employed in Kustanayskaya Oblast for mowing grain crops into a double windrow. They were made in farm workshops. This expensive need arose out of the fact that in recent years the oblast has not been supplied with wide-cut harvesters.

The machine operators in Moldavia are pioneers in the industrialization of the cultivation of agricultural crops. In order to implement a progressive technology, they had to use their own resources for producing or re-equipping more than 2,000 soil levelling units, a large number of couplings for the paired ganging of SPCh-6 sowing machines and multiple-purpose units for the simultaneous application and placement of herbicides in the soil. Unfortunately, many such examples can be cited.

During the July (1978) Plenum of the CC CPSU, Comrade L.I. Brezhnev stated: "We are striving to ensure that all of the diverse economic relationships within the farms and the agro-industrial complex as a whole serve to create a community and unity of interests between the state, the kolkhozes and the direct producers of products. V.I. Lenin considered one of the main principles of socialist management to be that of properly combining the interests of all parties participating in the production and sale of products."

The development of the economy is inseparably aligned with accelerating scientific-technical progress. Production operations are influenced mainly by machines. Thus, special attention is being given to the development of machine building. A requirement exists for creating equipment and technologies which will ensure growth in labor productivity and the capital-output ratio and achieve economies in the use of materials and energy. The agricultural workers are waiting for the designers to provide them with more improved machines, for the metal-intensiveness of the machines to be reduced, for increased standardization of parts and for lowered costs.

The decisions handed down during the 26th CPSU Congress and the resolution adopted by the CC CPSU and the USSR Council of Ministers entitled "On Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work" are pointing out the path to be followed for improving those branches of industry included in the country's agro-industrial complex. The realization of the measures planned will promote the development of agriculture and those branches associated with its industrialization or with the procurement, storage, transporting or processing of agricultural output.

The use of chemical processes in agriculture will increase at a high tempo. During the Eleventh Five-Year Plan, the deliveries of mineral fertilizers will increase by 100 million tons and amount to no less than 115 million tons in 1985. Considerable efforts are being directed towards raising the quality of the fertilizers and the means for protecting plants and also towards overcoming the deficit in phosphorus fertilizers.

Just as in previous five-year plans, land reclamation work will be carried out on an extensive scale. Using state capital investments alone, 7.1-7.5 million hectares of irrigated and drained land must be placed in operation and water supplied for 26-28 million hectares of desert, semi-desert and mountain pastures. The land reclamation construction workers must raise the quality of their planning and their construction of land reclamation installations, economies must be achieved in the carrying out of such construction and conditions must be created for the rapid development of reclaimed lands, for obtaining high yields from them and for achieving rapid reimbursement for capital investments.

Considerable resources are being made available for the construction and modernization of animal husbandry farms, feed preparation shops, feed storehouses and for the creation of highly productive feed lands. The construction of well planned housing units in the rural areas, childrens' institutes, clubs and athletic and other installations of a cultural-domestic nature will be carried out at a rapid tempo. A great amount of attention will be given to the construction of roads. Importance is being attached at the present time to fulfilling the plans, employing the resources being made available and raising the quality and lowering the cost of construction.

For the purpose of raising agricultural efficiency, no less importance is being attached to measures aimed at achieving production specialization and concentration based upon interenterprise cooperation and agroindustrial integration. This will make it possible to utilize available resources in a more rational manner for production intensification and for introducing scientific achievements and advanced practice into operations.

Although the recently created Soyuzsel'khozkhimiya All-Union Production-Scientific Association system is as yet merely gathering strength, nevertheless its subunits have already performed a tremendous amount of work and have won the respect of kolkhozes and sovkhozes. The concentration of specialized equipment has made it possible to organize more productive equipment usage and to reduce fertilizer losses. In addition, the concentration of skilled specialists and close contact with science have resulted in improved use of the fertilizers and plant protective agents. Soyuzsel'khozkhimiya already has a powerful pool of machines at its disposal today -- 100,000 tractors, the same number of motor vehicles, more than 450,000 specialized machines and other logistical resources. Its production subunits are carrying out a great volume of work on the farms in connection with the liming of fields and the chemical reclamation of land.

One large element of the agro-industrial complex is the USSR Goskomsel'khoztekhnika System; it plays an exceptionally great role in strengthening the logistical base of agriculture. Improvements in the engineering-technical service for agriculture and the development of the repair-technical base are subordinate to the main task -- achieving the most productive utilization of equipment at the kolkhozes and sovkhozes, increasing the output of the equipment, raising the production of goods and achieving further growth in labor productivity.

The Goskomsel'khoztekhnika System has the largest production base in the country at its disposal. The fixed capital of its enterprises amounts to 14 billion rubles. Hundreds of repair plants, thousands of workshops, technical servicing stations, technical exchange points, supply and staffing bases, installation sections and motor transport enterprises provide services for the kolkhozes and sovkhozes. During the years of the Tenth Five-Year Plan, more than 43 billion rubles worth of work was carried out, in excess of 100 billion rubles worth of logistical resources were sold, almost 10 million tractor and combine engines were repaired and restoration work was carried out on 1.7 billion rubles worth of parts.

However, the work being carried out within the system is hampered by many derelictions and shortcomings, as discussed in a self-critical manner during a meeting of its aktiv in March of this year. Valid criticism has been aroused by the low quality of repair work carried out at individual enterprises and the organization of specialized technical servicing for the machine-tractor pool and animal husbandry equipment leaves a great deal to be desired.

For the purpose of improving operations, in light of the decisions handed down during the 26th CPSU Congress, the collectives of associations, plants, workshops and other subunits of Goskomsel'khoztekhnika must direct their efforts towards eliminating shortcomings and raising the quality of work, the level of production intensification and also production concentration and specialization. Radical improvements are required in logistical support -- one of the most important conditions for highly efficient agricultural production. Special attention must be given to raising the post-repair service life of machines and units, to the degree of technical servicing of equipment made available to the farms and feed preparation shops and to the quality of the start-up and adjustment work.

While assigning a high grade to the work being performed by Soyuzsel'khozkhimiya and Goskomsel'khoztekhnika, the farm workers quite fairly stress the need for the development and use of measures aimed at raising their interest in the final results of agricultural production operations. Mutual responsibility is a factor deserving of attention.

At the present time, with special importance being attached to obtaining the greatest return from each hectare of land, each kilogram of fertilizer and each machine, greater use must be made of the knowledge and experience possessed by the specialists. Great importance is being attached to training and raising the skills of the engineering-technical personnel and machine operators, to improving the work of the engineering service, to creating machine yards and to ensuring thrifty use of all fuel and lubricating materials.

The problem of achieving improvements in the shift operation of equipment and in retaining machine operators on the farms continues to be a bottleneck on many farms. During the period since 1950, the pool of tractors and combines increased by a factor of 4.5 and the number of machine operators -- by only 2.5. During the years of the Tenth Five-Year Plan, approximately 4 million machine operators underwent training and yet their number at kolkhozes and sovkhozes increased by only 300,000. If this situation is to be corrected, concern must first of all be displayed for improving the living and working conditions of the machine operators and for observing the regime for work and rest, that is, the entire complex of measures for promoting the retention of machine operators in the rural areas.

Emphasis has repeatedly been placed upon the unacceptability of crop losses caused by poorly organized transport operations, improperly stored products or an inferior logistical base for the agro-industrial complex. A great deal is being accomplished in the interest of overcoming these shortcomings. During the Eleventh Five-Year Plan, optimum proportions will be ensured for developing the production and procurement, processing, storage and transporting of agricultural products. This will make it possible to keep the consumers continuously supplied with these products, while retaining the desired quality at the same time.

More than 90 branches of the national economy participate in the processing of agricultural products either directly or indirectly. The output of the agroindustrial complex occupies almost 75 percent of the retail turnover of goods in state and cooperative trade. An equally important condition for solving the food program and for improving the availability to the consumers of industrial goods made from agricultural raw materials is that of improving the work of these branches.

Having joined in the all-union socialist competition for successful fulfillment of the tasks of the Eleventh Five-Year Plan, the agricultural workers are actively striving to further increase production, improve the quality of the products and to solve the food program successfully.

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AGRICULTURAL MACHINERY AND EQUIPMENT

SYSTEM FOR COMPLEX MECHANIZATION OF AGRICULTURAL PRODUCTION OUTLINED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 6, Jun 81 pp 93-95

[Article by N. Stolbushkin, USSR deputy minister of agriculture: "System of Machinery of Comprehensive Mechanization of Agricultural Production"]

[Text] The 26th Congress of the Communist Party of the Soviet Union earmarked the main tasks for further progress in agricultural production and ways of carrying them out. Speaking at the Congress, General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, L. I. Brezhnev noted: "the underlying basis of scientific and technical progress is the development of science. But it is primarily machine building that can open wide the doors for the new. Machine building is called upon to assimilate everything advanced that is created by scientific and engineering thought and to embody it in highly efficient, durable machines, instruments and technological lines."*

Scientific and technical progress predetermines the need for agricultural application of a broad group of technical means, but it also makes it necessary to standardize them, to determine more completely their spheres of application, to type them and to automate them, and also to increase their reliability and durability. Structural changes in technical means are a direct form of manifestation of scientific and technical progress and the planning of the structure of these means and the control of them constitute one of the main objects of planning and controlling scientific and technical progress. In our opinion, a system of machines for comprehensive mechanization of agricultural production can be an instrument for this planning and control.

The party and government attach a great deal of importance to the creation of a scientifically substantiated system of machines for agriculture. This was reflected in the decree of the CPSU Central Committee and the USSR Council of Ministers of 25 May 1978, "On Measures for Further Developing the Comprehensive Mechanization of Agricultural Production and Supplying Agriculture with Highly Productive Technical Equipment." In keeping with the decree, a system of machines for comprehensive mechanization of agricultural production in 1981-1990 was developed and it was approved by interested ministries and departments in 1980. This is the basic guiding document for solving during the planning period all problems related to the development of agricultural technical equipment, and it is an order which has been coordinated with industrial ministries for the technical means that are necessary for agriculture, water management and forestry. This system includes four parts: "crop growing," "animal husbandry," "land reclamation and water management," and "forestry."

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*L. I. Brezhnev, "Accountability Report of the CPSU Central Committee to the 26th Congress of the Communist Party of the Soviet Union and Immediate Party Tasks in the Area of Internal and Foreign Policy," Moscow, Politizdat, 1981, p 59.

During the preparation of the system of machines a large amount of work was done to study and critically analyze tendencies that have manifested themselves in our country and abroad in agricultural production and tractor and agricultural machine building.

The complete implementation of the system of machines should solve the following problems:

to raise the technical level and productivity of tractors and agricultural machines;

to satisfy agriculture's needs for highly productive tractors and agricultural machines and to improve the power availability of the machine and tractor fleet of the kolkhozes and sovkhozes;

to create and introduce into production sets of agricultural machines and equipment for operation with tractors which provides for increased efficiency of the utilization of the latter in agriculture;

to complete comprehensive mechanization of agriculture, water management and forestry with a simultaneous increase in the productivity of agricultural crops and animal husbandry and to improve the quality and the production costs of products;

to introduce technologies that provide for guaranteed production of agricultural products, regardless of the weather conditions during the year;

to improve working conditions in agriculture;

to contribute to protecting the environment;

to increase the fertility of the soil;

to provide for further development of specialization and concentration of agricultural production on the basis of interfarm cooperation and agro-industrial integration.

In order to carry out the tasks listed above, the system of machines includes:

materials concerning recommended progressive technology for the cultivation and harvesting of all agricultural crops, taking into account the peculiarities of the zone and the production of animal husbandry and poultry products;

a list of machines and sets of them which are necessary for the introduction of the recommended technologies into agricultural production (also in the zonal cross section);

information about the main directions of technical progress both in tractor and agricultural machine building and in the mechanization of agriculture.

The development of the system of machines began in the 1950's and has been enriched in all stages of its formation, both qualitatively and quantitatively. Thus the new system of machines as compared to the preceding one (1976-1980) envisions a sharp rise in the technical level of technical equipment as a result of increased capacities of engines of tractors and specialized machines; increased working speeds and breadth of grasp of field equipment and power availability of tractors; increased cargo capacity of means of transportation; an increased proportion of self-propelled specialized machines and combined machines for soil cultivation in the composition of technological complexes; the application of hydraulic drive of working and moving parts of machines, automated means of driving and controlling them, and new hydraulic power systems with increased pressure; and a reduction of the expenditure of liquid fuel and electric power. The number of technical means included in the system of machines increased from 1,159 in 1957-1965 to 3,787 at the present time, that is, more than 3-fold.

All this provided conditions for mechanization of the main jobs on the kolkhozes and sovkhozes of the country: plowing, planting and harvesting grain crops, cotton, sugar beets and forage crops; processing and loading grain on the threshing floor; loading and supplying mineral and organic fertilizers; harvesting and storing hay, haylage and silage; and protecting the plants. The level of mechanization of the delivery of water to large horned cattle on the farm reached 88 percent, on hog raising farms--93 percent, and on poultry farms--95 percent; the mechanization of feed distribution reached 42 percent, 64 percent and 84 percent, respectively and the removal of manure--72 percent, 84 percent and 85 percent, respectively. Comprehensive mechanization included 39 percent of the accomodations for large horned cattle on the farms, 61 percent on hog raising farms and 69 percent on poultry farms and complexes. New technical equipment qualitatively changed the labor of agricultural workers and made it possible to introduce previously unknown technical processes and to increase the crop yields as well as labor productivity.

The implementation of the system of machines contributes to planned work for qualitatively updating technical means that come to the kolkhozes and sovkhozes of the country. But during the years of the 10th Five-Year Plan industry developed and assimilated into production the K-701, T-150K and MTZ-80 high-powered tractors; the new RKF-6 6-row sugar beet machines; ZhVS-6 and ZhRB-4.2 reapers for mowing grain and pulse crops; the KSM-6 6-row potato planter; SKT-2 tomato harvesting combine and much other technical equipment.

The goal of the system of machines in organizing work for creating new technical equipment, modernizing it and raising the technical level is generally recognized. Yet the state of affairs with respect to its implementation can not be considered satisfactory. Thus during 1976-1980 the system of machines was implemented by only 75 percent, including 73.7 percent in crop growing, 73.5 percent in animal husbandry, 77.4 percent in land reclamation and 89.8 percent in forestry.

The system of machines for 1981-1990 includes kinds of machines produced by industry that are in the stage of assimilation and also those for which scientific research and experimental design work has to be completed. It envisions the following main directions for the development of agricultural technical equipment for individual groups of machines.

In tractor building the main tendency is to increase the unit capacity of the tractors. It is intended to create the following tractors: of the wheeled (general purpose) 8-ton class with a 500 horsepower engine; caterpillar of the 5-ton class with a 250 horsepower engine; a universal plowing tractor of the 2-ton class with a 150 horsepower engine; and also to increase the capacity of the T-150K series produced tractors to 200 horsepower and the DT-75M to 110-120 horsepower. The average capacity of agricultural tractors delivered to agriculture in 1981-1985 will increase to 100 horsepower.

The new tractors are to be equipped with mechanical and hydraulic transmissions with shifting during motion, new hydraulic systems with increased pressure, hydraulic drive of working parts of machines that are used with them, and means of automation of driving and control. The efficiency of agricultural transportation is to increase as a result of the increased unit lifting capacity and carrying capacity of the machines; higher transportation speeds; a larger list of specialized vehicles that are intended for work with changeable beds; and the application of a large number of containers for transporting agricultural cargos.

In order to improve machines and implements for cultivating the soil, it is intended to increase the operating speeds and the breadth of the grasp of soil-cultivating machines and aggregates through the introduction of high-powered equipment and to create combined soil cultivating machines and sets of them for minimal and neutral cultivation of the soil and the replacement of several operations with a single operation that is more efficient.

Universal highly productive feed harvesting combines will be used in agricultural production, mainly self-propelled ones with an engine capacity of 200 horsepower and more, and a large amount of less productive field harvesting equipment will be replaced. The Niva and Kolos grain harvesting combines will be modernized and their handling capacity (for harvesting wheat) will be increased to 7 and 9 kilograms of grain mass per second, respectively; new highly productive grain harvesting combines with handling capacities for harvesting wheat of up to 12 kilograms per second and more are being created.

The acceleration of the creation of technical means for mechanizing animal husbandry and poultry raising which provide for the introduction of progressive technologies contributes to increasing the productivity of the animals and poultry and to economic utilization of feeds, electric power, fuel and other materials.

A higher technical level of hydromelioration systems and increased efficiency of mechanization and automation of jobs related to irrigating and draining land will be provided through expanded application of both general purpose machines and specialized universal construction machines with multi-purpose action; an increased proportion of self-propelled and transportation machines with pneumatic drive and hydraulic transmission and also universal sprinkling machines that provide for the application of mineral and organic fertilizers, herbicides and pesticides in addition to irrigation of agricultural crops. A new generation of machines will be created for forestry which have elements for automated control of their working processes. Forestry tractors will be modified for operation on felled areas where the stumps have not been removed, marshes, mountain slopes and in deserts. Complexes of machines will be created for harvesting, cleaning and processing feeds. There will be mechanized means of caring for the forests and protecting the plantings, and complexes of highly productive machines will be created for forest renewal and tree propagation.

Complete provision of the country's kolkhozes and sovkhozes with the technical equipment envisioned by the new system of machines will make it possible to complete the comprehensive mechanization of the production of grain, corn, cotton, sugar beets, flax and grain feeds; by 1985 to raise the level of mechanization of the harvesting of potatoes with combines to 85 percent, cabbage--to 75 percent, tomatoes--to 40 percent, carrots and bulb onions--to 80 percent, fruit and grapes--to 20 percent; the distribution of feeds on farms for large horned cattle--to 65 percent and hog farms--to 80 percent; and work for removing manure on these farms, to 80 and 90 percent, respectively.

According to calculations of the All-Union Scientific Research Institute of Mechanization of Agriculture and the All-Union Scientific Research Institute of Electrification of Agriculture, the expected effect from complete implementation of this system of machines will provide for a reduction of calculated outlays in crop growing of 3.9 billion rubles and labor expenditures--4.6 billion man-hours per year. Labor productivity in all the main branches of crop growing is increasing 1.5-2-fold. Operational expenditures for obtaining animal husbandry products will decrease by 25-30 percent and labor expenditures--2-4-fold.

Questions of the quality of the manufacture, the reliability and the durability of agricultural machines continue to be important. Therefore design organizations, in addition to creating new technical equipment, must devote constant attention to raising the technical level and improving the quality of the equipment that is produced, and especially the reliability of tractors, combines and agricultural machinery, to increasing the time tractors operate before the first major repair to no less than 6,000-8,000 hours, and especially to ensuring that they operate without breakdowns for 300-500 motor-hours. Agricultural machines that are not used for long periods of time must operate without capital repair throughout their entire service life and should operate without breakdowns throughout the season.

This requires better material and technical supply of agricultural machinery production with the necessary profiles of rolled metals; industrial rubber items with the required service life (low-pressure tires, hydraulic system hoses for high-pressure delivery, sturdy sealing items, elastic rubber for milking machines); corrosion resistant materials; shock resistant plastics; transparent polymer material and non-rusting steels that contain nickel for milking and dairy equipment, and new filter materials for purifying milk.

The system of machines for comprehensive mechanization of agricultural production is the result of the work of a large detachment of scientists, designers and experimenters. The time has come to combine the efforts of scientists, designers and specialists in agriculture, forestry, water management and industry to create new, improved technical equipment in keeping with the system of machines. This will prepare conditions for an accelerated changeover of the production of agricultural products to industrial methods.

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TILLING AND CROPPING TECHNOLOGY

IMPROVEMENT IN CROP ROTATION CALLED FOR IN KAZAKHSTAN

Alma-Ata SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 5, May 81 pp 9-11

[Article by A. Shchekota, director of the farming sector of the agricultural department in the Central Committee of the Kazakhstan CP: "Accelerating the Assimilation of Crop Rotations"]

[Text] "In farming the most important goal is the overall improvement in soil fertility and productivity and the continued growth of production of grain, feeds and other products on the basis of utilizing zonal scientifically-based systems of economic management."

("Basic Directions of Economic and Social Development in the USSR in 1981-1985 and in the Period to 1990")

For agricultural workers in Kazakhstan the 10th Five-Year Plan was the most successful in the entire history of farming. In comparison with the Ninth Five-Year Plan average annual grain production increased by 27 percent and comprised 27.5 million tons. Four times during these years the republic poured over 1 billion poods of quality grain into the homeland's granaries.

The growth of gross yields of grain and other crops has been achieved basically by means of intensive factors--by increasing productivity. Thus, for example, during these years the productivity of grain fields increased by 1.8 quintals; of potato fields--by 17 quintals per hectare. In 1980 589 enterprises cultivated grain harvests of over 100 poods and 335 of them, or one out of seven, produced over 20 quintals per hectare.

More extensive and complex goals stand before village workers this year and during the 11th Five-Year Plan. The obligations for 1981 call for the production of 27-28 million tons of grain and for the overproduction of the plan for its sale to the state. We are to send 2,445,000 tons of sugar beets, 760,000 tons of vegetables, 490,000 tons of potatoes and many other field products to procurement points.

In order to accomplish this in each kolkhoz and sovkhoz it is essential to bring all internal reserves into action to increase field productivity and gross grain yield of all crops. We are speaking of raising the quality level of farming everywhere, improving seed farming, utilizing fertilizer and technology more effectively and striving for the greatest return on irrigated lands.

One of the integral factors in the continued intensification of farming is the introduction and assimilation of scientifically-based crop rotations, which play an important role in the more efficient utilization of lands and in increasing their fertility, and in producing ever-growing gross yields of high-quality products.

Research that was conducted by scientists of the All-Union NII [Scientific-research institute] of the grain industry and tested in commercial plantings in the institute's fields as well as in the sovkhozes and kolkhozes of neighboring oblasts, has established that in Northern Kazakhstan the largest output of grain per hectare of plowland is secured in crop rotations with short rotations and a field of clean fallow. The largest harvests are produced in four-, five-, and six-field grain-fallow rotations with one field of clean fallow. When sown here spring wheat yields an average of 19.6 quintals per hectare; as the second crop after fallow--16.8 quintals; as the third--15; and more than 3 years in a row--10.3 quintals per hectare. In grain-intertilled cultivation with a five-field rotation without clean fallow the gross grain yield decreases sharply.

Thus, without clean fallow in the steppe rayons of the republic, without the assimilation of field crop rotations with short rotations it is difficult to count on producing stable and growing grain harvests. Fallow is the best predecessor not only for spring wheat but for many other crops as well. When cultivated properly there is a sharp drop in the number of pests, the soil is cleared of weeds and accumulates the maximal amount of moisture and nutrients.

Nevertheless, despite the high effectiveness of clean fallow, some kolkhozes and sovkhozes underestimate its role. Frequently fields that are earmarked for fallow are sown in crops. This hinders the assimilation of crop rotations, and worsens the selection of predecessors for sowing subsequent crops. In the republic each year over 1.4 million hectares of fallow lands are sown and as a result the area in fallow has decreased--in Eastern Kazakhstanskaya Oblast in 1979 to 0.5 and in 1980 to 0.2 percent instead of 5.7 percent as planned in crop rotation schemes, in Kustanayskaya Oblast 8.2 and 7.4 instead of 14.1 respectively, in Semipalatinskaya 8.3 and 7.6 instead of 12.9 percent. The areas in fallow are also not being maintained in Aktyubinskaya, Ural'skaya, Taldy-Kurganskaya and Chimkentskaya oblasts.

We cannot tolerate this. We should remember that the established relationship of areas of clean fallow and the volumes of planned schemes of crop rotations will undoubtedly encourage the continued growth of productivity and production of all types of agricultural products in each enterprise.

In the republic there are many light soils which are subject to wind erosion if not cultivated properly. For such soils special soil-conservation crop rotations with an alternation of fallow and annual crops with perennial grasses are recommended. The most widespread is soil-conservation crop rotation with the sowing of wheatgrass in strips as the drought-resistant crop. When introducing such crop rotations it is essential to precisely develop a transition table and to strictly adhere to the alternation of crops in strips. The successful solution to many questions of improving the effectiveness of utilizing lands that are subject to erosion has enabled us to expand the soil-conservation crop rotations in practically all the oblasts of the republic. At the present time they (with strip distribution of crops)have been introduced in 683 enterprises on an area of about 10 million hectares and have been assimilated on 7.5 million hectares. This has enabled many enterprises to fully halt soil erosion and to increase the productivity of plowland significantly. In the Kaskelenskiy Sovkhoz of Alma-Atinskaya Oblast the productivity of grain crops was 8.1 quintals prior to the introduction of grains and soil-conservation crop rotations, as compared with 12.8 quintals per hectare after their assimilation.

It is important to note that crop rotations with clean fallow have recommended themselves on dry-farming lands in the south and southeast of the republic as well, where there are about 3 million hectares of plowland. The average productivity of winter wheat has comprised 18.1 quintals following clean fallow for the last 16 years; as the second crop after fallow--10.6; and as a monocrop--7.8 quintals per hectare. As the second or third crop after fallow spring barley yielded 12-24 quintals per hectare as compared with 8-10 quintals without crop rotations.

On irrigated lands the role of scientifically-based crop rotations is even greater. It is they that enabled the Pakhtaaral Sovkhoz and the Kolkhoz imeni Kirov of Chimkentskaya Oblast to produce large harvests of all crops each year. During the 10th Five-Year Plan the average productivity of grains comprised 57.1 and 63.9 quintals per hectare respectively. As a result of developing cotton crop-rotations the Sovkhoz imeni Satpayev of this oblast produced 32.8 quintals of cotton per hectare in 1980, which is 1.5 times more than the amount produced in neighboring enterprises.

Maintaining crop rotations is especially important when cultivating industrial and vegetable crops and potatoes. Disregard for this agricultural measure and the sowing of sugar beets on the same fields for 5-6 years in a row have been the major reasons for the fact that in recent years beets on the plantations of beet-growing enterprises have been subject to root rot and other diseases to a greater and greater degree. The underproduction of root crops has become chronic and their quality has dropped sharply. According to data from phytopathological studies, the infection of sugar beet crops with root rot in the republic comprised an average of: in 1971--12.3 percent; in 1977--15.6; and in 1979--26.1 percent of total crops.

On the basis of long-term research conducted by the scientists of the Kazakh NII of Farming, the following optimal structure for sowing areas in crop rotation is recommended for beet-raising enterprises: alfalfa--25 percent; grains--37.5 percent; and sugar beets--up to 37.5 percent. It would be most effective to have eight fields in which beets are planted in furrows and turned furrows of 3-year alfalfa on two fields in the first link and on the third field--in the second link after winter wheat with catch crops of legumes for green manure. On the average for 1976-1980 the productivity of sugar beets using this system comprised 486-497 quintals per hectare with a sugar content of 17.1-17.4 percent, which is 100-110 quintals more than that produced without rotations.

For enterprises in which sugar beets are severely infected with root rot and other diseases and where it is necessary to recultivate irrigated lands, the following structure is recommended: alfalfa--up to 25 percent, grains--up to 50 and sugar beets--up to 25 percent with the allocation of one field of sugar beets in the first link of the crop rotation following turned alfalfa furrows and a second field--in the next link after winter wheat with afterharvest green manure crops. In recent years the institute's scientists have been conducting research on finding the best predecessors with a different selection of crops. In the new alternation perennial grasses are absent, but perennial rye and annual crops are utilized.

The experience of many sovkhozes and kolkhozes proves the important role of crop alternation and the maintenance of crop rotation in cultivating other crops such as sunflowers, cotton, potatoes and vegetables.

In the republic a number of livestock complexes with large herds have been created. They require varied and quality feeds. For this reason it is essential to have feed crop rotations near farms. In each zone the selection of crops would differ and those selected would be characterized by large and stable harvests and high-quality feed. For the southern oblasts this includes alfalfa, cockshead sainfoin, sweet-clover, Sudan grass and sorghum. In the eastern section of the republic peas, cockshead sainfoin and awnless bromegrass are successful. In the western, central and northern regions on non-irrigated lands the largest yields are produced by annual and perennial cereal grasses. Under irrigation conditions the most productive are perennial grasses--cockshead sainfoin and alfalfa as well as mixtures of these grasses with awnless bromegrass.

Corn is the universal feed crop for all zones in the republic. It is also a good predecessor in field as well as special crop rotations.

In recent years rape, a high-protein crop, has been becoming more widespread in many regions. Its excellent feed qualities, simple cultivation agrotechnology and undemandingness to natural conditions enable us to cultivate this crop in various regions on large areas of land.

It should be noted that the largest return on the feed field is obtained if the established alternation of crops is maintained. Until recently it was believed that in creating sown feed lands it is necessary to include as many components as possible in crops. However, the data of scientific institutions and the practical experience of enterprises have demonstrated that it is not always expedient to do this. A decrease in the number of crops used in mixed grass stands enables farmers to satisfy their biological needs more fully, to decrease the amount of agricultural technology, to ease the procurement and processing of seeds and to simplify other economic and agrotechnical operations. A large number of different crops in the crop rotation makes it difficult to assimilate the fields. At the same time we cannot cultivate just one type of grass. Unfortunately, some enterprises tolerate the sowing of monocrops and utilize such "perennial grasses" on so-called non-rotation fields or on lands removed from rotation for 8-10 years at a time without alternating with other crops.

In examining the question of assimilating crop rotations, it is essential to consider at the same time the use of lands that have been plowed for the radical reclamation of meadows and pastures, numbering 10.4 million hectares in the republic. These soils are primarily of average quality. In many enterprises they are not included in crop rotations and are not utilized systematically. Frequently a single crop is allowed to grow here for 5-6 and more years in a row and little fertilizer is applied. In 1980 3.9 million hectares were sown in grains and annual grasses, 5.9 million were made into meadows with perennial grasses and only 549,000 hectares, or 5 percent, were in fallow. Considerable areas of such lands are annually sown in preliminary crops by the kolkhozes and sovkhozes of Aktyubinskaya, Kokchetavskaya, Kustanayskaya, Semipalatinskaya, Ural'skaya and other oblasts.

The practical experience of leading enterprises demonstrates that with proper use these lands can produce good harvests of agricultural crops. For this reason the plowing of meadows and pastures to improve them should be done in strict accordance with soil quality. From the first year the soil should be used correctly and economically. On cultivated lands feed crop rotations with grains should be introduced.

In the coming five-year plan extensive work is planned in the republic to develop solonets lands. Their increased effectiveness will also be encouraged by the correct selection and regular alternation of crops, i.e. by the development of special reclamation crop rotations. These will enable us to strengthen the effectiveness of the basic method of land improvement, to secure the positive effect on the soil, to stabilize and improve the salt regimen and other chemical, water-physical characteristics and to produce the maximum amount of product per unit of area.

In accepting the structure of sowing areas as the economic basis for building crop rotations, we should note that the structure should correspond to the needs of a scientifically-based alternation of crops in the fields. Otherwise the development of crop rotations will not secure an increase in soil fertility and crop yield.

The data of scientific institutions and the work experience of leading enterprises indicate that each field in the crop rotation must be subject to its own technology of cultivation, which must be adjusted each year by agronomists (depending upon moisture reserves, weeds, soil compaction and other factors). It is necessary to determine the schedule and depth of cultivation and the equipment that will be needed to fulfill each operation and secure high work quality.

After considering existing possibilities and needs of crops under cultivation regarding nutrients, it is very important to use cartograms in each enterprise to determine what fields in the crop rotations need fertilizer, when and at what rate. An attempt must be made to achieve the maximal effectiveness of each kilogram of mineral fertilizer.

As of 1 November 1980 in the republic crop rotations have been introduced on 33.9 million hectares and developed on 23 million hectares, comprising 66 percent of the plowland. This work is being performed most successfully in the enterprises of Northern Kazakhstanskaya and Tselinogradskaya oblasts, where 83-88 percent of the plowland has been included in crop rotations; and in Kokchetavskaya, Pavlodarskaya and Turgayskaya oblasts, where 74-78 percent of the plowland is in crop rotations. The development of scientifically-based crop rotations in a complex with other agrotechnical measures enabled the Iskra Sovkhoz and the Vostok Sovkhoz of Northern Kazakhstanskaya Oblast, for example, to achieve a yield of 22.3 and 27 quintals of grain in 1980 respectively and of 20 and 21.8 quintals per hectare on the average over the 10th Five-Year Plan. The proper alternation of crops, high-quality agrotechnology, the efficient utilization of fertilizer and well-organized seed farming enable the Stantsionnyy Sovkhoz of Kustanayskaya Oblast, the 50 Let Komsomola Sovkhoz of Kokchetavskaya Oblast and the Shuyskiy Sovkhoz of Tselinogradskaya Oblast to annually produce larger harvests of grain and other crops than those produced in neighboring enterprises.

Unfortunately, many sovkhozes and kolkhozes do not give the necessary attention to crop rotations. They are developed slowly. Even worse, last year in Aktyubinskaya Oblast the area in developed crop rotations decreased by 146,000 hectares and now comprises only 27 percent of total area. In Alma-Atinskaya Oblast it has decreased by 52,000 hectares (40 percent of total area is in rotations), in Karagandinskaya Oblast--118,000 and 54 percent, and in Semipalatinskaya--92,000 hectares and 40 percent. Only one-third of the plowland has been included in crop rotations in Dzhambulskaya, Kzyl-Ordinskaya and Taldy-Kurganskaya oblasts.

The basic reasons for the slow development of crop rotations are the curtailment of fallow lands, a change in the specialization of the enterprise without an accompanying change in the structure of the sowing area and the absence of the necessary quantities of seeds for perennial grasses. Many enterprises cultivate them on plowland and especially in meadows and pastures 2-3 times longer than the optimum. The fields in such grasses cannot serve as good predecessors; they become weed-infested and dry out. As a result the productivity of subsequent crops is not high.

Directors and specialists of agricultural organs, sovkhozes and kolkhozes must clearly understand that with the continued intensification of farming the development of crop rotations becomes a priority, and the sooner the problem is solved in each enterprise, the better. In a period of scientific-technical progress we cannot work in old-fashioned ways.

We must also closely relate the methods of effectively utilizing lands with new forms of labor organization and with the growing level of material-technical supplies in enterprises. The introduction of a branch structure of management with a shop form of labor organization, the plowing of large areas of natural feed lands and the utilization of broad units in sowing and harvesting operations have inspired many directors and specialists to begin reorganizing the land structure within the enterprise to enlarge fields and crop rotations. An example of the creative approach to solving this problem is the Krasnoyarskiy Sovkhoz of Tselinogradskaya Oblast. Previously there were 30 crop rotations here with an average field size of 335 hectares; now 12 rotations are being introduced with each field consisting of 581 hectares. The number of fields is decreasing from 112 to 64.

"When we enlarge fields and crop rotations," says the director of the sovkhoz, Hero of Socialist Labor D. V. Burbakh, "we efficiently concentrate crops of annual varieties in certain regions and thus we also concentrate the work force and technical resources during field work. Favorable conditions are created for introducing the flow-group method of work, for organizing sowing and harvesting complexes and complex harvesting-transport detachments and other progressive technologies. There is an improvement in agronomical services and controls, it is easier to provide cultural and personal services and to technically service units. It is possible to begin socialist competition more extensively and effectively and to raise the productivity of labor."

The question of introducing and developing scientifically-based crop rotations must become the basis for an evaluation of each agronomist and in the final analysis for a concept that is closely related to the quality of farming, the quantity and quality of products, the future development of all agricultural production in the sovkhoz, kolkhoz or brigade. Today we can name many senior agronomists of kolkhozes and sovkhozes who for many years have been persistently supporting high-quality farming and the introduction and development of scientifically-based crop rotations. These include N. N. Selivanov and S. Baranbayev of Tselinogradskaya Oblast, L. U. Koretskiy and Sh. Zh. Turalinov of Northern Kazakhstanskaya Oblast, I. I. Satanov and N. Ya. Kotlyar of Kokchetavskaya Oblast, T. T. Sultanov and M. A. Romanyuk of Pavlodarskaya Oblast and many others.

The experience of leading workers should be spread everywhere. Party, soviet and agricultural organs and the directors and specialists of enterprises must take the necessary measures to complete work in the near future on introducing and developing crop rotations and on securing the effective utilization of each hectare of plowland.

A successful solution to these problems will enable the agricultural workers of the republic to significantly raise the effectiveness and stability of agricultural production output, thereby making a worthy contribution toward realizing the goals that were established by the 26th CPSU Congress and the 15th Congress of the Kazakhstan CP.

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FISHERIES

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COLLABORATION BY CEMA MEMBER STATES IN INDUSTRIAL FISH RAISING

Moscow MEZHDUNARODNYY SEL'SKOKHOZYAYSTVENNYY ZHURNAL in Russian No 3, 1981 pp 47-49

[Article by Yu. Prudnikov, candidate of economic sciences and expert attached to CEMA Secretariat: "Collaboration of CEMA Member States in the Field of Industrial Fish Raising"]

[Text] In solving the problem of satisfying more completely the requirements of the population for fish and fish products -- an important source of protein in the food of man -- great importance is attached to the development of fish raising in fresh water areas. At the present time, this branch of the fishing industry is being carried out using the traditional technology and intensive methods. Use is being made of ponds, lakes, reservoirs and basins. A great amount of attention is being given to the industrial raising of fish in fishponds and basins and also to the use of discharge warm water from electric power stations and other enterprises.

In 1976, 0.24 million tons of fresh water fish were raised in CEMA member states. The fish productivity of finishing ponds in the Socialist Bloc countries fluctuates from 0.4 to 3.2 tons per hectare and the yield of fish products from 1 square meter of fishing ponds and basins amounts to an average of 30-35 kilograms.

In the future, the plans for the CEMA member states call for the production of fish in commercial ponds, basins and fishponds. Circulating systems of water usage, for the raising of marketable fish and young fish will be introduced into operations at a rapid rate.

The principal methods for developing pond fish raising are intensification, which includes land reclamation measures, fertilization, a polyculture, proper feeding, aeration, selection-breeding work and the introduction of water invertebrates as food for the fish and also improvements in the methods used for the plant reproduction of fish.

The natural fish productivity of ponds is 0.2 tons per hectare or higher. The introduction of more improved methods for applying fertilizers can raise their productivity by 0.2-0.4 tons per hectare. The introduction of plankton crustacea as fish food is making it possible to increase the fish productivity by 0.2 tons per hectare or more. In the process, the feed expenditures for producing marketable fish decrease by 30 percent.

The methods developed by ichthyologist specialists in the CEMA member states for the storage, activation and incubation of the eggs of water fleas and oligochaete are making it possible to obtained the required amounts of live feed at any time of year. This is serving to increase the yield of hardy fish stock to 80-90 percent.

Important factors for raising the productivity of the pond-fish culture include improvements in the preparation of the feed mixtures and in the technology for feeding fish, the development of new recipes and a search for cheap and highly effective raw materials for the production of feed (for example, single-cell algae, yeasts, products of microbiological synthesis and so forth). Studies carried out in Socialist Bloc countries have revealed that improvements in the feed preparation technology serve to raise the effectiveness of use of nutrients by 30 percent, under the conditions of a pond-fish culture. Future plans call for improvements in the feed preparation technology through the introduction of damp pressing and other progressive methods. The solving of this task will make it possible to lower the feed coefficient by 15-20 percent or more.

One important problem associated with achieving a rapid increase in the production of fish is that of creating large fish nurseries, which will satisfy the requirements of the farms for full-value fishing stock. The development and introduction of industrial methods for reproduction will make it possible to create a controlled process, eliminate contact between the producers and the young fish, reduce the number of producers and obtain offspring earlier than is the case with natural spawning. By lengthening the growing season, it is possible to raise the average weight of the fishing stock and thus increase the fish productivity of the ponds by roughly 0.1-0.15 tons per hectare. At the same time, the plant methods for obtaining young fish are advancing the task of creating a new element in the technological process, namely that of maturing the young fish. This task is being solved successfully in Hungary.

The experience accumulated in a majority of the CEMA member states in the use of warm industrial waters for fish raising is making it possible to plan several trends in the development of this branch.

1. The use of cooling basins for the fattening and reproduction of fish of valuable species is making it possible to realize more completely the potential of the natural feed base and to carry out the biological reclamation of water areas. Depending upon the status of the natural feed base of a water area, it is possible to obtain 0.3-0.6 tons of marketable fish per hectare. The principal objects of warm-water fish raising are herbivorous fish, carp and, in the future, buffalo and others.

2. The creation of fish nurseries of various types (pond nurseries, those supplied with warm water, chute type nurseries and multiple-purpose nurseries) for the purpose of supplying the farms of interior water areas with a more complete supply of young fish stock.

3. The organization of highly intensive commercial fish raising farms -- fishponds and basins. The raising of fish in such ponds is possible only on the basis of their being supplied with industrial full-value feed. The principal objects of fish raising farms of this type -- trout, carp and iktalurus. In the USSR, trout

are obtained in fishponds at the rate of 25 kilograms per square meter and in basins -- 50 kilograms and carp -- 105 kilograms per square meter or more.

The combining of the new warm water and existing pond farms is considered to be extremely advisable. This offers greater prospects for employing warm waters for the raising of large fish stock.

Circulating systems of water usage, for raising marketable fish and fish stock, is a basically new form. This system offers reliable control over environmental conditions and it excludes the possibility of the causative agents of diseases from entering it. Such circulating systems can be built in any of the climatic zones in the CEMA member countries. Experimental units are being employed for raising commercial fish and also fish stock -- young carp, trout, eels, channel (American) catfish and others. In the process, use is being made of floating, granulated feed; the average feed coefficient for the raising of marketable carp and trout is roughly 1.5.

The scientist-ichthyologists of CEMA member states have developed and placed in production operations a number of methods which make it possible to lower considerably fish losses caused by diseases. This includes the method of prophylactic treatment of fish using dyes in hibernating ponds, the prevention of gill necrosis by applying lime directly into the nursery and fattening ponds, the introduction of furazolidon in the feed for the purpose of combating red rot in carp, the express method for determining the sensitivity of bacteria to antibiotics and others. The development, through joint efforts, and the introduction into production operations of new means and methods for preventing fish diseases, for example, vaccination with the feed, new anti-parasitic preparations for the mass treatment of fish, anthelmintics and others are making it possible to reduce the losses in fish products by 8-10 percent.

Studies carried out in the field of genetics and the selection of fish in Hungary, Poland, the Soviet Union and Czechoslovakia were aimed mainly at creating highly productive strains of carp, which would be suitable for breeding in corresponding climatic zones. The Hungarian and Ukrainian carp, the rate of growth of which is 20-30 percent higher than that for the non-selection forms, are characterized by a high level of productivity.

The exchanging of fish stock between the CEMA member states is deemed advisable. At the same time, it bears mentioning that we have still not touched upon the selection of new objects of fish raising -- buffalo, American catfish and others.

One of the most important trends in selection is that of creating strains of fish for highly intensive forms of fish raising (warm water raising, fishponds, circulating systems). The selection process is accelerated in the case of year-round raising of fish. Computations have shown that during a 10 year period it is possible to create special strains of fish having a productivity that is higher by a factor of 1.5-2 than fish raised on commercial farms.

Studies in the field of genetics have been aimed mainly at developing highly effective selection methods. Substantial successes have been realized in this regard in the Soviet Union, where a method of induced gynogenesis of fish has been developed; mutagenesis and genetic marking are being employed in selection. For the future, extensive studies are also planned in biochemical genetics and the karyology of fish and in the use of polyploidy, androgenesis and other highly effective genetic methods.

Great importance is being attached to solving the problems noted in the mechanization and automation of fish raising processes. The CEMA member states are carrying out joint scientific-research and planning-design work in connection with the creation of technological lines for raising fish in a closed water supply cycle having a productivity of 10-15 tons of fish annually, automatic lines for issuing feed in accordance with a given program into ponds 30 hectares or more in size and having a productivity of 2-5 tons per hour, technological lines for removing the fish from discharge ponds having a productivity of 15 tons per hour and automatic feed distributors -- both shore and floating -- having various productivities and so forth. Automatic fixed and mobile equipment and instruments should be created for determining the complex of chemical and physical parameters of the water in fish raising water areas.

Computations have shown that in order to introduce the complete mechanization and automation of fish raising processes in the CEMA member states by 1990, it will be necessary to increase the deliveries of machines and equipment by a factor of 8 compared to the modern level.

The CEMA member states are combining their efforts aimed at increasing the production of fresh water fish, using industrial methods, in conformity with the long-term special purpose program for further improving collaboration in agriculture and the food industry. Within the framework of the CEMA Permanent Committee on Collaboration in the Food Industry, a general agreement was prepared on collaboration in improving the existing technology and creating a new one and also on the techniques for fresh water industrial fish raising. This agreement was signed by the representatives of competent organs in Bulgaria, Hungary, Vietnam, the GDR, the Republic of Cuba, Poland, Romania, the Soviet Union, Czechoslovakia and Yugoslavia.

In accordance with the program for collaboration called for in this general agreement, by 1990 a complex of scientific-research and experimental-design work will be carried out, equipment models will have been created and tested and recommendations for the production of equipment for fresh water fish raising will have been prepared. During the 1981-1985 period, the plans call for the development of the foundation for intensifying fresh water fish raising, using industrial forms and, in particular, a study of the interaction of the technological factors of industrial fish raising, at pond farms and in a closed cycle of water usage. The plans call for the development of a technology and equipment for the raising of fish in circulating systems. Biotechnics for the raising of fish using new industrial methods will be developed, highly productive schools of brood stock fish have been created and the physical-biological principles of feeding and feed formulas and also the means for preventing and treating specific fish diseases under the industrial forms of fish raising have been developed. The plans call for the preparation of a formula and a technology for producing full ration feeds, taking into account the species and age specifics of the valuable strains of fish and the appropriate equipment. Special attention will be given to the production of the "Starter" and "Grower" types of feed.

The plans call for an extensive program for improving existing methods and developing new ones and also for improving the equipment required for the complete mechanization and automation of fish raising processes. This work will be carried out based upon the preparation of technical requirements for the creation, in the CEMA member states, of the equipment required for the complete mechanization and automation of fish raising, in accordance with the agreed upon nomenclature for machines, equipment and instruments.

In developing the general agreement among CEMA member states and the SFRYu [Socialist Federated Republic of Yugoslavia], multi-lateral and bi-lateral contracts are being prepared for collaboration in the field of mutual use of a gene fund for the best species of fish and hybrids and also for the production of various types of feeds, premixes and preparations for the prevention of fish diseases.

The principal result of collaboration will be a noticeable increase in the volume of fresh water fish produced on commercial farms (up to 1 million tons by 1990). As a result of the implementation of the measures called for in the general agreement, the CEMA member states will be able to achieve the production volume in marketable fish called for in the national programs, in a shorter period of time (2-3 years) and with less expenditures (by 9-12 percent). Moreover, in the future they will be able to increase this volume substantially.

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FISH INDUSTRY MATERIALS FOR MIXED FEED PRODUCTION

Moscow MUKOMOL'NO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST' in Russian No 5, May 81 pp 17-18

[Article by N. Shibin, deputy chief of the Administration for the Production of Fish Products and New Technology of the USSR Ministry of the Fish Industry: "Fish Industry -- For Mixed Feed Production"]

[Text] The decisions handed down during the 26th CPSU Congress called for an increase in the production volume for marketable fish food products, for further expansion in the assortment of these products and for improved quality. Towards this end, the plans call for the fishing industry fleet to be provided with new and highly productive ships and for improvements to be realized in the use of the fleet as a result of the technical re-equipping of the ships with new and highly efficient equipment.

However, the fishing industry of our country, in addition to supplying fish food products for satisfying the requirements of the population, is also producing fedd products, the principal consumers of which are the mixed feed enterprises.

The production of feed fish meal is based upon the use of fish waste products obtained during the preparation and processing of fish. Only 86,000 tons of fish meal were produced in 1960. However, the production of feed fish meal increased at a rapid rate during subsequent years: in 1965, the production of this product reached 237,000 tons and by 1975 it had increased by a factor of more than 2.5.

In order to achieve such growth in the production of feed fish meal, the USSR Ministry of the Fish Industry carried out organizational-technical measures aimed at increasing the capabilities for its production and supplying the enterprises and ships with modern equipment.

In the early 1960's, the production of fish meal was concentrated directly in the regions of the trade, as a result of which the principal volume of the feed fish meal produced was provided by the fleet and approximately 15 percent was produced at shore enterprises, mainly from the waste products of canning production operations.

Prior to the beginning of the 1970's, new items of equipment were placed in operation: fish industry ships equipped with highly productive fish meal units, specialized fish processing floating bases of the Pyatidesyatiletiye SSSR class and four floating bases that had been re-equipped to serve as specialized fish meal floating bases. These new items of equipment promoted an increase in the production of fish meal.

The new conditions for fishing, particularly the introduction of 200 mile fishing and economic zones by a number of countries, reduced considerably the opportunities available for producing feed meal. Measures are being undertaken aimed at uncovering and utilizing new raw material resources for use in increasing the production of feed products.

One source of raw material for the production of feed fish meal is that of small types of fish and also the catching of certain other types of low-value fish not used for food purposes. In 1973, the production of feed meal was organized based upon the use of shellfish which inhabit the waters in the vicinity of Sakhalin Island. Such shellfish contain up to 6 percent nitrogen substances, calcium carbonate -- up to 85.7 percent and moisture -- up to 5 percent. This year, at the Starodub Base of the Kholmsk Fishing Combine, the plans call for the installation of a unit for processing the shellfish into feed meal. Based upon the results of production testing, a decision will be made regarding the series production of equipment for utilizing the existing raw material supplies of shellfish.

During the past few years, measures have been carried out aimed at improving the quality of the feed meal. In 1974, the industry commenced the production of fish meal in granulated form at large fish meal bases and recently it terminated for all practical purposes the production and shipment to consumers of fish meal in large briquettes.

The protein content in fish meal has been raised substantially and a reduction has taken place in the number of incidents in which individual batches of feed fish meal are shipped to consumers containing deviations from the standard requirements (in size of grist and fat content).

It bears mentioning that in accordance with the GOST [State Standard] for feed fish meal made from sea mammals or crustaceans, a fat content of up to 22 percent is permissible in the feed meal produced, but in the process the raw material or semi-finished product must be treated with an anti-oxidant. Such anti-oxidants -- Ionol and Diludin -- are being released in quantities sufficient for satisfying the requirements of the USSR Ministry of the Fish Industry and, for adding them to the meal, the enterprises of the fish industry are being supplied with the required number of micro-batchers for the shipboard and shore fish meal units.

Unfortunately, despite the measures employed, incidents of feed meal being produced with deviations from the GOST requirements are still being tolerated for such indicators as metal impurities, size of grist and moisture content. This has been caused by technical imperfections in the direct drying fish meal units. Thus, in modernizing the ships, the direct drying units are being replaced by fish meal units of the press-drying type. All new ships are equipped with fish meal units of this type, which must have vacuum-evaporation equipment for the complete use of pressed broths following their steaming for feed meal. This will make it possible to increase the yield of feed fish meal and to raise its quality by preserving the more valuable water-soluble proteins and Group B vitamins.

Acting upon the instructions of Gosstandart [State Committee for Standards of the USSR Council of Ministers], USSR Minrybkhoz [Ministry of the Fish Industry], jointly with USSR Minzag [Ministry of Procurements, USSR Minsel'khoz [Ministry of Agriculture] and USSR Minzdrav [Ministry of Public Health] examined the problem of including indicators for a bacteriological evaluation in the GOST for feed fish meal. It was considered advisable to include the following indicators in GOST 2116-71: overall number of microbe cells in 1 gram of product -- not more than 500,000 units; microbes of the salmonella group not tolerated. At the present time, preliminary work is being carried out in connection with completing microbiological analyses of industrial batches of products in conformity with the "Rules for the Bacteriological Study of Feeds." However, in view of the fact that the production of feed fish meal on ships constitutes 90 percent of the overall production of this product, the carrying out of such analyses involves additional difficulties.

For packing the feed fish meal, USSR Gossnab supplies mainly bags which were used previously and which are obtained from enterprises of USSR Minzag and USSR Mintorg [Ministry of Trade], bags which lack the required sanitary processing. In addition, when packaged in low quality and non-hermetically sealed packaging materials and assuming prolonged transporting by sea or rail, the possibility exists that the materials will become contaminated by bacteria during loading and unloading operations. In this regard, we are of the opinion that the meal should ideally be analyzed for bacterial "going to seed" at the mixed feed enterprises prior to its being used for the production of mixed feed.

The planned growth in the production of mixed feed is bringing about an increase in the requirements for fish meal and the fish industry workers are undertaking all possible measures aimed at increasing the production and raising the quality of this important protein component of mixed feed.

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